HUMAN ORGANIZATION

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George M. Foster

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Reviews of the Literature

VOLUME 11 **NUMBER 3**

PUBLISHED BY THE SOCIETY FOR APPLIED ANTHROPOLOGY

THE SOCIETY FOR APPLIED ANTHROPOLOGY

THE Society for Applied Anthropology was incorporated as a scientific society in 1941 under the laws of the Commonwealth of Massachusetts. Its primary objective is "the promotion of scientific investigation of the principles controlling the relations of human beings to one another, and the encouragement of the wide application of these principles to practical problems."

Services

With the establishment of central offices, the Society is undertaking to provide informational services to members. These include the maintenance of a roster of those working in the field of applied anthropology, an up-to-date record of research facilities and projects, a file of current job opportunities, and liaison with sources of research and fellowship funds.

Among the more important services, the Society arranges consultant relationships with other institutions, in particular with agencies of the Federal Government. In order to obtain the services of one consultant or more, any organization, whether Federal or private, may contract with the Society to undertake a survey or other study and the Society in turn employs the consultants. An arrangement of this kind is mutually advantageous, since it is difficult for private individuals to enter into such agreements with governmental institutions. Among contracting agencies in the past have been the Office of Foreign Agricultural Relations, United States Department of Agriculture, and the Bureau of Indian Affairs, United States Department of the Interior and the United States Department of State.

Meetings

The Society holds its own annual meetings as well as meetings held in conjunction with other scientific societies. These meetings are designed to encourage members and others working in the field of applied anthropology to develop a common practice and point of view and to share and evaluate the methods and generalizations deriving from research. The differing specialties combined under applied anthropology ordinarily have separate sessions at the annual meeting. They include: Industrial Relations, Social Psychiatry, Social Work, Agricultural Extension, Anthropology in Government, Inter-Group Relations, and Community Organization.

Publications

A quarterly journal, *Human Organization,* is published by the Society and is devoted to the presentation of research results in the several fields of specialization of the members. It also provides a summary evaluation of the literature from the point of view of the needs of the practitioner, and a continuing description, by the editors, of the latest methods and techniques for field investigators.

Announcing

The Third Annual

BRONISLAW MALINOWSKI AWARD

In the interest of encouraging workers in the various fields of applied anthropology to report on their findings, an award was established in 1950 in honor of the late Bronislaw Malinowski, an original member of the Society for Applied Anthropology and, before his death, one of its strongest supporters. The donor of the award wishes to remain anonymous.

The following prizes will be awarded to the authors of the best papers submitted before December 1, 1953:

Class A: First Prize: $100.00
Second Prize: $50.00

Class B: Special Student Prize: $50.00

The papers should represent the results of actual field work and involve the presentation of concrete cases showing:

(1) A study of changes that have taken place in a specific interpersonal situation as a result of technological, environmental, or other changes; or

(2) A situation in which changes were introduced by an individual or a group in order to accomplish specific results. In such a case, the paper should explain the purpose of the intended change, describe the existing situation, and then state what happened as a consequence.

Rules of Entry

(1) The competition is open to non-members as well as to members of the Society. Entries should be marked "Class A" or "Class B." There are no special requirements for entry under "Class A." An entrant under "Class B," however, must be enrolled as a student at a recognized educational institution, and should state the name of the institution and the name of an instructor.

(2) Papers may be submitted from December 1, 1952 to December 1, 1953. The awards will be announced January 1, 1954.

(3) The editors of HUMAN ORGANIZATION will act as sole judges.

(4) Only papers that have not been previously published will be considered for the award.

(5) During the period of the competition, some of the papers may appear in HUMAN ORGANIZATION, but this will in no way indicate that such papers have a priority in the competition.

(6) Papers should not exceed 12,000 words in length. Footnotes and bibliographies should be attached on separate sheets of paper. All material should be typed and double-spaced.

(7) Papers should be addressed to:

The Editors,
HUMAN ORGANIZATION,
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New York 19, N. Y.

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Editor: ELIOT D. CHAPPLE *Managing Editor:* ELIZABETH PURCELL *Reviews Editor:* CHARLES F. HARDING, III

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Editorials

Research—Business or Scholarship?

I

Football and basketball aren't the only problem children in the University moral family, although they still reap all the headlines. Under the necessity of augmenting University incomes, both faculty and administration are going into the research business in a big way. Professors are naturally anxious to further their research interests by acquiring grants from foundations, or government, or industry; by so doing, they can increase their own incomes as well as create jobs for their students and like-minded colleagues. The University administration sees a heaven-sent opportunity to get a substantial percentage of faculty salaries taken care of and, moreover, to load on to the research a very considerable amount of University "overhead." Good jobs are created for those with a proven capacity for selling, although salesmen and sales managers usually appear on faculty lists under such euphemistic titles as Director or Dean.

Unlike the other big business enterprises—college teams—research is spared the violent manic-depressive action of the old grad. When he bungles the renewal of that big Army contract or alienates the big-wigs of American Teething and Diapering Corp., the director and quondam Professor is never subjected to such intensive persecution as the losing football coach undergoes. But in the inner halls, he knows that continual failure will take him out of the bigtime, and deprive him not only of the thrill of being in the center of power, but of the added income, the expense accounts, and the adulation of the job-seeking students. He may even have to go back to carrying a full-time teaching load unless he can get back into the groove.

Not all of this money raising activity is, of course, immoral, but there is an important difference, it seems to us, between the traditional pattern of getting money for research and the present frenetic and highly-organized campaigns to get funds for research, no matter what the "research" turns out to be. Not that there weren't high-pressure operators in the old days, but when Universities were not in such stringent financial circumstances the incentive and the need were by no means as great.

The difference seems to lie in the lack of clarity as to the proper function of University research, in the absence of any standards as to what a University should accept or reject. Furthermore, both business and government are able to have a research job done at far less expense than they could if they did it themselves or hired a commercial organization; they also derive a benefit, tax-wise, from the money they give to philanthropic institutions.

The result is that many major institutions are operating as research factories, employing cheap, graduate student labor, offering tax exemptions and all the other benefits for which Universities qualify, and are underpricing their commercial competitors and even tax-supported governmental research units. Even where the research is called "pure" and not confessedly "applied," in many fields outside of the exact sciences the "pure" seems hard to define and the "applied" too often becomes the repetition of well-established routines for a new customer. The research aspects (the scientific problem) in such instances becomes little more than would be the case if we were to classify each act of reaching for the aspirin bottle when we had a headache as a research project.

In discussing these issues (which we shall do in several subsequent editorials) it is not enough to try to make a practical distinction—if a commercial organization is able to do the job a University should not be hired, since many companies, particularly in the exact sciences, do carry on fundamental research. We do not have to beg *that* question in our field, that is, we need to come up with some criteria for de-

fining research, both pure and applied, which are scientifically justified and ethically and morally defensible.

One point can be made at the beginning which should help to clear the air. An activity cannot be called research if it simply involves the application of already-proven techniques to a new population (in the statistical sense). To illustrate in a field outside of applied anthropology, but one that lends itself to simplicity of example, if a psychological test has been proven to be useful in determining the degree of mechanical aptitude among mechanics, its application to new groups of machinists *ad nauseum* is not research (however useful it might be to the companies employing the machinists). Similarly, the use of a micrometer to check the dimensions of bearings coming from a machine is not research, *unless* a new variable on which information does not exist has been introduced into the situation and might be expected to vary the results. Both of these illustrations are of inspection processes which have been standardized and proceduralized; there would be no question that the latter example does not constitute research, but many Universities are only too glad to regard the former as "research" to be provided for industrial clients.

A Film and Sound Recording Inventory

The Director of the Clearinghouse for Research in Human Organization has recently sent out an appeal to members to classify and list with the Clearinghouse any films or sound recordings they have made in the field in order to develop a continuing inventory of data which can be available as a Clearinghouse service. We hope that everyone who believes in the value of motion pictures and sound records as an aid in field investigation will cooperate, and that those primarily concerned with descriptive work will make an increasing effort to obtain such material.

If cameras or tape recorders are taken into the field, however, we would very much like to encourage the researcher to spend more time before going out in mastering the technique of using these instruments. There are many anthropologists with real skill and competence in the use of a camera, but there are also many whose preliminary acquaintance with the machine seems to have involved a 10-minute session during which an "expert" explained: "This is how you work it." The result is that the film quality (and from here on we shall concentrate on that very difficult medium) is bad, inadequate attention is paid to lighting, the camera motion is liable to be jerky, and little or no awareness has been shown of the problems and limitations of long shots and close-ups, or of the problem of showing action.

Actually the use of the camera as a means of getting significant data on human relations is far more difficult for the anthropologist than it is for a professional whose sole job is to make a picture. Normally, the anthropologist cannot stop the action, cannot get the actors to repeat sequences, and cannot choose the individuals who are to play the various roles. On the other hand there are many films nowadays, notably those made in Italy, which illustrate realistic camera techniques which could be useful to anthropologists. Considering the expense of film, the trouble of carrying equipment around, the tendency for the camera to be in its case when a particularly significant bit of action is occurring, it would seem to be worthwhile to plan in advance what use is to be made of the film. It would be very useful to plan how much of the available footage is to be devoted to static sequences on material culture, how much to individual activities, and how much to recording the interactions of the individuals one is studying. Although the anthropologist is not primarily concerned with making a documentary film from his material, he should realize that for teaching or public relations purposes, a professionally-shot and professionally-edited film, that is, professional in its quality, can be a very valuable by-product of his use of the camera. He should also make himself familiar with the existing footage of other investigators, or documentary or newsreel companies, so that his precious film will not be wasted on the duplication of shots which already exist in great abundance. (He will probably be surprised to find out how much film there actually is in various and unexpected places.)

With a knowledge of existing material and, consequently, of what needs to be shot as a mere matter of filling out the background record against which his human relations sequences will be placed, he can then devote the minimum footage to establishing-shots and concentrate on developing a systematic sampling plan for the human relationships with which he is concerned. Much of this will have to be planned in the field after a period has been devoted to becoming familiar with the people, but an outline prepared in advance can act as a salutary corrective to any tendency to waste film in the enthusiasm of the moment.

Once a systematic sampling plan has been worked out to cover the significant interactional events in the various institutions as they change with time, perhaps the greatest need is to make sure that there is a minimum of close-ups and a maximum of medium or two-shots (shots where at least two of the individuals interacting are in the same frame). While the close-up helps to give a better impression of the reaction pattern and personality of the individual, the same effect can be obtained by showing the other person or persons in a small group. Such sequences are more effective both dramatically and anthropologically, since from them we can understand to what action of the one person the other individual is reacting. Close-ups of single individuals are strongly accentuated in American film productions, but for field purposes, the amount of film used on them should be held to a minimum.

Since the Society does have specialized projects in the film area, it may be possible to give advice to members who are going into the field on how to find out what film is already available on the people with whom they are going to work, and also to suggest how they can obtain technical advice on the actual making of films or sound recordings. Members interested in such information should write the Executive Secretary.

Robert K. Lamb

The editors regret that the paper on the work of the late Dr. Lamb was not finished in time to be included in this issue of the journal.

Relationships Between Theoretical and Applied Anthropology:

A Public Health Program Analysis

George M. Foster[1]

I. Introduction

Many, if not most, American anthropologists regard applied anthropology with ambivalent feelings. On the one hand there is a growing feeling that the anthropologist must play a more positive part on the contemporary scene, that his obligation to society cannot entirely be fulfilled by traditional research and teaching. On the other hand there is evident reluctance to come to grips with the "applied" challenge for fear one's scientific integrity will be compromised. This situation stems from the historical and cultural conditions which have surrounded the evolution of the anthropological disciplines. Until recent years, this developmental period corresponded with an era in which the optimistic belief was generally held that society was steadily and automatically becoming more humane and just. Such an outlook was conducive to a scientific point of view which laid stress on research for its own sake, and which held that any and all new contributions to knowledge were justifiable, simply as contributions to knowledge, and not because of their practical import. The goal structure and value system of anthropology were formed under these conditions, so it is natural that maximum prestige came to be attached to theoretically-based research. Social and economic progress might require the technological application of the fruits of the physical and biological sciences, it was thought, but not of the social sciences.

During the past generation it has become apparent that progress—whatever its definition may be—is not automatic and inevitable. Our generation, unlike earlier ones, no longer assumes that its children and grandchildren will live under more desirable conditions than now exist. Rather, it is generally realized that the achievement of progress will require the full utilization of all human knowledge, and that broad-scale social and economic planning (which is by no means the same as a totally "planned society") are essential on both a national and an international basis. The size and scope of American technical aid programs, popularly known as Point IV, testify to the extent to which we as a nation accept this changed point of view. Cultural concepts will play an increasingly important role in such programs. The question is, will anthropologists contribute a fair share to such programs, or will problems of a cultural nature be dealt with by others scientifically less well qualified?

As possessors of specific knowledge, concepts, and working techniques, anthropologists recognize intellectually their responsibility to contemporary society. But it is apparent that wholehearted acceptance of this responsibility, in the sense of willingness to participate in action programs, is a difficult step for many to take. To a very considerable extent, our professional value system is still based on premises which were true when it came into being. The truth of this statement is illustrated by the difficulties encountered in securing qualified personnel for programs which deviate sharply from the fields in which anthropologists traditionally have worked. As a profession, we who claim to know most about peoples and their cultures are facing the third quarter of the 20th century and its world-wide socio-economic problems with a definitely limited point of view. This is a most serious matter, for the future growth and utility of anthropology will be seriously constricted if we are unwilling or unable to recognize the tremendously expanded scientific environment in which we live, and its opportunities, as well as the possibility that we may have to pay certain penalties in order to exploit them.

The reconciliation of the theoretical and applied points of view is perhaps not as dangerous nor as difficult as is often imagined. This paper describes an attempt to bridge the gap.

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1. The following Institute of Social Anthropology personnel participated in the field work which served as a basis for this report: Charles Erasmus, in Colombia and Ecuador; George M. Foster, in Chile and Salvador; Isabel T. Kelly, in Mexico; Kalervo Oberg, in Brazil; Ozzie Simmons, in Chile and Peru. Dr. Greta Mostny of the National Museum of Natural History in Santiago made important contributions to the Chilean research. Individual country papers by several persons are in press or projected. Only a small part of the field data are here presented.

Only one type of applied anthropology is considered: that dealing with technical aid programs of the type now popularly referred to as Point IV, carried out by the United States Government in cooperation with the governments of countries technologically less advanced. Conclusions reached suggest that anthropological participation in this type of work offers unusually fresh fields for basic cultural research, while at the same time planning and execution of the practical programs may be materially aided.

The field research here discussed grew out of a combination of circumstances: the availability of Institute of Social Anthropology field personnel living in Latin America who were well acquainted with local cultures; their belief that there are meaningful culture patterns common to most Latin American countries which if isolated would be useful in the planning and execution of technical aid programs; the existence in 17 Latin American countries of Institute of Inter-American Affairs technical aid programs, some with a history of 10 years' operation, in the fields of public health, agriculture, and education.

The research problem was defined in the following general terms: how can the anthropological axiom—"in order to work with a people it is essential to understand their culture"—be translated into terms that would be meaningful to administrators. Two conditions were to be met: (1) the results must be such that Institute of Inter-American Affairs administrators would see how they might be applied immediately to existing and future practical programs; (2) contributions were to be made to basic anthropological theory, within or apart from the applied context, in the sense of testing premises or hypotheses.

With respect to the first requirement we defined a practical program as one where a conscious attempt is being made to change the habits and action patterns of a group for its benefit. This might be through better health and hygiene, higher agricultural yields, or basic education and increased literacy. Cultural data which would promote a higher degree of efficiency in carrying out such programs would meet the first requirement. We begged the question of values by avoiding the problem of whether it is possible to say in an absolute sense that any program is "good" for the people toward whom it is directed.

With respect to the second requirement, the most promising lead appeared to be the testing and evaluating of the assumption that cultural phenomena occur in cross-cultural patterns that can be defined and analyzed, that they are not haphazard and unique events. If this assumption is correct it follows that once significant patterns have been isolated and are understood, they will have predictive value of a generalized nature, not perhaps in the sharp sense of the natural or physical sciences, but sufficient to furnish useful guides to program planners and administrators. Obviously the ultimate success of a technical aid program depends in considerable part on the ability to predict how the people one hopes to benefit will react to the proposals made to them, and how the human element may be manipulated to achieve a particular goal, once it is set. The ability to predict accurately gross human behavior requires a significant sharpening of basic theory in the field of cultural dynamics.

It appeared that analysis of certain public health programs —particularly health centers—established by the Institute of Inter-American Affairs in cooperation with local ministries of health offered the most promising research possibilities. Comparable programs existed in all countries where it was proposed to work; they involved contact with a wide range of people, particularly rural and low-income urban groups; ideas of health and illness are always deeply-imbedded in the folk belief and the folk value system of such people; these are situations and conditions in which anthropologists have had wide experience.

The experimental situation, then, as finally outlined, may be summed up as follows: Beginning in 1942, essentially identical cultural stimuli (modern public health programs) were applied to a number of countries which, although of the same super-culture area, show local and national variations in both horizontal and vertical directions. In 1951-52 some of the results of these stimuli were studied simultaneously by cultural anthropologists familiar with the general outlines of each culture, using essentially the same field techniques and methods. Suggestions were made to the administrators of each project as to ways increased efficiency might be injected into programs, and cross-cultural comparison of all results was made. We felt that such a situation, if any, would give us an opportunity to find regularities in cultural processes which, if known, would facilitate the development of concepts and operational procedures that might be applied successfully to similar situations in other cultures.

II. The Research Setting

The Health and Sanitation Division of the Institute of Inter-American Affairs[2] operates in 17 Latin American countries through cooperative agreements with one or more ministries. The operational units (except in Brazil) are known as the *Servicio Cooperativo Interamericano de Salud Pública,* usually abbreviated to *Servicio,* a term which has come to be used generically to describe any cooperative program of this type. The original objective of the Division was to provide professional and technical aid and service in the field of public health in Latin America. In line with this policy major programs have been carried out in the fields of preventive medicine, control of specific diseases (malaria, yaws, venereal disease, tuberculosis and others), environmental sanitation and health education. Due to a lack of medical facilities in many places, numerous hospitals and dispensaries have been constructed and maintained, so that an important part of the budget has been devoted to medical care as well as to public health in the more limited sense.

The health center is a focal point of an important part of these services. A typical center, usually a building constructed especially for this purpose, offers pre- and post-natal hygiene, infant hygiene (including inoculations), dental clinic, communicable disease control (including venereal disease and tuberculosis clinics), laboratory analysis, environmental sanitation, home visits by nurses, and vital statistics analysis. Privy construction, milk distribution to the needy, public baths and other additional services are found in some. Maternal and child health services constitute the core of all programs.

2. Now the Division of Health, Welfare and Housing.

Families are enrolled, and the appropriate members are expected to come regularly for services according to prearranged schedules. Nurses spend part of their time within the centers, in the several services, and the remainder in home visiting. In theory the work is "preventive," that is, not directly concerned with treatment of illness (except for special diseases). In practice it has been found necessary to offer much clinical care in order to induce patients to avail themselves of the services. Staff members of all health centers are nationals of the countries concerned. They include a head doctor and head nurse whose duties are largely administrative and supervisory, and several full or part time doctors, nurses, nurse's aides, sanitary inspectors, laboratory technicians, and lesser functionaries.

Field investigations were carried out in two periods. The initial research was done in the spring of 1951, and lasted for about a month. For this work two health centers in each of four countries—Brazil, Colombia, Mexico, and Peru—were selected, one in an urban and one in a rural area. Subsequently, Institute of Social Anthropology personnel were asked to participate in a general evaluation of the Health and Sanitation Division programs carried out by a special survey team which included two public health doctors, a public health nurse, a hospital specialist, a sanitary engineer, a civil administrator, and a historian-statistician. Accordingly, in the fall of 1951 and the spring of 1952 the field of anthropological research was extended to include Chile, Ecuador and El Salvador, and additional research was done in Mexico and Brazil. Health centers continued to be the focal point of these investigations, but attention was also given to other aspects of public health, including nursing schools, hospitals, health education and the like.

This division of the work into two periods made possible a preliminary report[3] containing a series of tentative hypotheses and conclusions, based on cross-cultural comparison of data from four countries, followed by the opportunity to test these conclusions in three additional countries. Similar field techniques were used in all countries. Health center personnel, including directors, head nurses, nurses, nurse's aides, doctors, and sanitary inspectors were interviewed. Doctors and nurses were observed in action in the centers, as they received and administered to patients. Home visiting nurses were accompanied on their rounds, they were studied at "BCG" posts where they vaccinated against tuberculosis, at "mothers' clubs" where pregnant women were given instruction in the care of infants, and at volunteer aides' training sessions. Operations of *Servicio* hospitals were analyzed. Random sampling of populations within the area of health centers was done on a door-to-door basis to obtain a cross section of public opinion concerning *Servicio* projects. Health education programs were studied, and limited experimental work in health education was carried out. Tests were given in nursing schools to determine the extent erroneous folk belief was retained by nursing students. Use was made of whatever statistical data were available. Informants were "worked" in typical ethnographical fashion to formulate the basic patterns of folk belief concerning health and disease.

3. *A Cross-Cultural Anthropological Analysis of a Technical Aid Program*, Smithsonian Institution, Washington, D.C., 1951.

The types of data gathered embrace a rather full description of folk medicine in the seven countries studied, including information on the types of illness for which patients will consult doctors, and those which they prefer to take to the folk curer or treat with home remedies, a good knowledge of health center operations as they impinge upon patients, information on attitudes of patients, potential patients and former patients toward centers and hospitals and the medical profession in general, attitudes of doctors, nurses, sanitarians and other personnel to their jobs, to each other, and to patients, and their ideas of their problems. Statistical data showing the extent to which *Servicio* programs are patronized were analyzed, as were data on community organization and the possibilities of stimulating better organizations as an aid to public health programs.

III. Folk Medicine and Interpersonal Relationships

Time did not permit the traditional anthropological approach—of many months of study culminating in a well-rounded description of all aspects of life of the peoples concerned. For such aspects as economic organization, income and cost of living, family structure, education and literacy, religion, the prestige complex, and the basic value system, it was necessary to depend largely on the data already on record. Although these fields were by no means neglected, it quickly became apparent that two other categories of data were particularly important for our purposes:

(1). The whole complex of beliefs, attitudes and practices associated with health, prevention of disease, disease, and curing—in the broadest sense, "folk medicine." Though a considerable bibliography on Latin American folk medicine exists, no systematic cross-cultural analyses useful for our purposes existed.

(2). The quality and nature of interpersonal relationships, particularly between patients and public health personnel. These proved to be most effectively studied by analyzing patient reaction to public health services, and by noting characteristic attitudes of all groups of people with the other groups with which they came into contact in the public health situation.

A limited description of data from both categories is essential for an understanding of conclusions reached.

The Nature of Folk Medicine

Almost all groups in Latin America are equipped with a philosophy which explains the cause and cure of disease and the prevention of illness which in many ways is in direct conflict with the teachings of modern medicine. Nevertheless this philosophy forms the basis to explain the action patterns of the peoples in question which must be changed if modern medicine is to prevail. In Latin America there is no single integrated theory of disease, but there is a surprisingly high degree of homogeneity in the sense of common themes and patterns that are so general as to form a framework within which local variations can be studied. These ideas of health and illness are the end result of a long period of fusion of two currents of thought: native American Indian concepts of the universe and man's place in it, and the ancient medical

heritage brought to the New World by the Spanish and Portuguese.

Probably the largest single element in the total body of belief is that which has come down through two millenia from the humoral pathology of Hippocrates and Galen. According to that theory each of the four bodily "humors" was characterized by two of the qualities associated with the four elements of fire, earth, water, and vapor. Thus, blood was hot and wet, phlegm cold and wet, yellow bile hot and dry, and black bile cold and dry. The proper balance of these humors resulted in health; imbalance produced illness, which would logically be characterized by abnormal cold or heat and dryness or moistness. This concept, with subsequent modifications and elaborations, reached Spain and Western Europe via the Arab world. It was transmitted to Hispanic America after the Conquest, where it remained the basis of medical classification and teaching until the 18th century. Selected aspects of this theory—particularly the concept of heat and cold as qualities of the body, of types of illness, and of foods and herbs—became part of the folk belief of most peoples. General concepts of humors have also prevailed in some places.

Hence, today, there is a widespread tendency to explain many illnesses in terms of "heat" or "cold," terms which do not necessarily correspond to actual temperatures, but which are innate qualities of substances. Pneumonia, for example, may be classified as a "cold" illness, and typhoid fever as "hot." Frequently, but by no means always, treatment is based on the concept of opposites: "cold" remedies and foods for "hot" illnesses, and vice versa. The "hot" and "cold" distinction provides a general framework of do's and don't's for popular medicine: under what conditions and in what sequence certain foods can be eaten, and what the results will be if the scheme is violated; which remedies can be used for which illnesses, and what the consequences will be if these rules are transgressed.

In each country or area folk medicine has a core of principal illnesses (often with picturesque names) that have no exact equivalent in modern medicine. Each illness has recognized causes, symptoms and cures. Some "folk" causes may be called "rational" in that they are explainable on the basis of the body of empirical knowledge to which the group has access. This knowledge may be erroneous in terms of modern science, but it makes sense in terms of the logical premises of the group. For example, the widespread belief that abnormal cold causes respiratory illness is "rational." Closely related to extreme cold as a causative agent is *aire* or *mal aire* ("air," "bad air"), when this is explained as an actual current of air, a draft, which cools the body, producing various types of illness. Contracting *aire* is almost inevitable if one emerges from a house when warm, or if one breathes air much colder than that breathed a moment before. This in large part explains the belief widespread in Latin America that central heating is unhygienic if not downright dangerous. Violations of "hot" and "cold" food prohibitions which lead to illness may also be classified among the "rational" causes. The role attributed to "microbes," however poorly the term is understood, is another evidence of a rational pattern. For example, the recognizably contagious qualities of such diseases as measles and smallpox put them in this category—as does the belief that gonorrhea comes from intercourse with a menstruating woman, or from sitting on a hot rock, or that malaria comes from eating certain fruits, or not sleeping enough at night. The Colombian belief that "bad odors" cause illness likewise falls in this category, as does the Chilean concept of *empacho*. The latter is one of the most common folk ailments of children and is believed to be caused by green fruit, soft bread, half-cooked food or some similar object lodging in the stomach or intestines.

In general, illness and injury which are explained as due to such "rational" or empirically determined causes are considered by the folk to be "natural." The most common "natural" diseases have names corresponding to those of modern medicine and, in terms of popular syndromes, sometimes etiologies, but only rarely cures, they are essentially the same: whooping cough, colds, grippe, appendicitis, diptheria, measles, chickenpox, smallpox, intestinal worms, diarrhea, venereal disease, typhoid fever, pneumonia, tuberculosis, and so on.

Other causes may be said to be magical or supernatural in nature, in that they lie outside the body of knowledge empirically verifiable by the group. *Mal de ojo,* or *el ojo* ("evil eye") is the most widespread "illness" in Latin America that is explained in magical terms. Certain individuals have the power, often unintentional and sometimes unknown to themselves, of causing illness in small children by looking at or admiring them. Such a person frequently touches the child at the time of looking, thus preventing the *ojo* from taking effect, or if this is not done recourse may be had to home cures or a *curandero*.

Sometimes *susto* ("fright") is magical in origin in that a malignant spirit or ghost may take possession of an individual, or be the cause of the fright. Bewitchment is not uncommon. For example, rag dolls or images are used to represent the victim, and into them pins are stuck or other injuries inflicted. The belief that a cold essence emanates from a corpse and can cause bystanders to fall ill unless ceremonial bathing or cleansing follow, is another example of a supernaturally-produced condition. In El Salvador this emanation is *hijillo,* and in Colombia *hielo de muerto*.

Folk recognition that strong emotional experiences can cause an individual to fall ill is evidenced by the wide variety of names for sicknesses that are essentially psychosomatic. The emotional experiences which most often produce physiological results include fright, anger, desire, imagined rejection, embarrassment or shame, disillusion, and sadness. *Susto* or *espanto* results from fright, and frequently is explained as a shock which separates the spirit from the body. The cure depends on inducing the spirit to return to its temporal home. *Colerina* is the term often used for disturbances produced by great anger or rage; in Mexico, epilepsy is thought to have this cause. Desires are called *antojos;* unfulfilled food desires of pregnant women may result in birthmarks, whereas those of small children will give them gastric upsets. (Consequently, in Chile the wise parent never denies a child any food, drink, or sweet it wants, however inappropriate it may be). In most countries sibling rivalry is recognized, often in a form in which a child shows unconscious resentment toward an unborn child of its mother. In Mexico this is known as *sipe,* in Salvador the child *está peche,* in Ecuador *pasión* results

and often accompanies weaning, in Peru the term is *caisa,* and in Chile this jealousy is one cause of *pensión*. In Peru embarrassment or shame produce *chucaque,* while in Salvador they cause a bothersome sty known as *pispelo*. The Peruvian *tiricia* is the result of a strong disillusion, and the Ecuadorian *mal de corazón* results from the loss of a loved one, loss of money or property, or some similar saddening experience.

Perhaps the most significant fact with respect to folk illness is that symptoms usually are broad and vague: vomiting, fever, diarrhea, sore throat, aches, and the like. Because of the generality of these symptoms they lend themselves to almost any kind of interpretation, and it would seem that this is precisely what happens in the majority of important folk illnesses. When symptoms appear, the experiences which have preceded them are reviewed and will often reveal the occurrence of an event known to produce a certain illness. Was the patient recently exposed to cold or to a current of air? Did he make an enemy who might bewitch him? Was he frightened? Was he embarrassed or angered? Hence, the symptoms, combined with the supposed causative event, are interpreted as due to such-and-such an illness, and treatment is prescribed accordingly. For example, if a child develops fever and diarrhea the parents may recall that the previous night it had fallen from its bed and cried; since such a fall might frighten a child, it is logical to expect *susto* to follow. Then those symptoms identified with *susto* and characterized by vagueness are seized upon to confirm the diagnosis. Many can be discerned with little imaginative effort: paleness, eyelashes growing long, sadness, and so on. The parents are now sure the child suffers from "fright" and the *curandero* is called in.

In other cases, symptoms which may have been present all the time assume a new significance after an expectancy is created. Once the culturally recognized cause has occurred, occasional crying or vomiting, either one of which is sufficient to diagnose evil eye, are seized upon as proof that the child indeed has been "eyed" by someone. The symptoms of still other illnesses described here appear in considerable part to be manifestations of culturally patterned behavior: for example, the person who experiences great embarrassment may be *expected* to evidence some form of illness. (Of course it is possible that the individual actually develops these or other symptoms as a result of his emotional experience). The functional value of such behavior as being the individual's way of escape from an unpleasant situation is apparent. In Peru he takes refuge in *colerina* from the embarrassing or unpleasant aftermath of a fit of anger, and thus renders himself immune from possible retribution.

Folk medical practitioners most commonly are called *curanderos* (feminine *curandera*) in Latin America, though other terms are encountered: in Salvador, *parchero* is also used, and in Chile, *meico* and *meica* (from *médico,* "doctor"). Midwives are called variously *parteras, comadronas,* or *curiosas*. Usually these men and women have come to occupy their positions after long periods of formal or informal training, not infrequently as apprentices or assistants to older practitioners. Only rarely do they claim divine or supernatural powers to aid in their cures, or combine their work with black magic. Their clinical perspicacity is often astonishing—beyond doubt they frequently cure sickness and alleviate suffering—and they have considerable knowledge of herbs, as well as of psychology. In general they are honest, sincere practitioners, and respected members of the community. In most cases they cannot be looked upon as witch doctors, frauds, or shams.

Folk cures make use of a variety of techniques the most common of which are herb teas. Massage is often resorted to, and usually is explained as an action that removes the illness or poison from the body, in a mechanistic sense. The famous egg-rubbing of the body of a child believed to suffer from evil eye falls into this category. A warm, freshly-laid egg is passed over the body of the little patient, broken open and examined, and if a spot appears on the yoke it is assumed that *el ojo* has struck the child. This diagnostic practice also has therapeutic value and frequently is believed to cure the child. Poultices often are used, sometimes for mechanical effects, but more commonly for magical reasons: in Peru and Colombia a live pigeon is split open and applied to the body for certain illnesses. Diet is important in all areas, with special attention to the "hot-cold" qualities of the foods. Often, certain days are used for curing (Tuesday and Friday, especially in Peru) and certain hours of the day. Religious orations and creeds frequently are recited.

Most of these techniques and cures are worthless in a clinical sense; at best their therapeutic value is psychological. Nevertheless, a good deal of significant knowledge has been contributed to medicine through primitive or folk pharmacopoeias, and a number of general symptomatic curing practices appear to be of sufficient value for the entire complex of folk medicine of a people to be critically examined by competent judges before it is decried as worthless.

The pervasiveness of folk medicine, its vitality, and its self-sufficiency are noteworthy. It is not just a question of a random collection of old beliefs and superstitions. Folk medicine flourishes today because it is a functional part of the people's way of life. It is believed in, it is practiced, it is given credit for its own cures—as well as many for which it cannot claim credit—and is recognized, consciously or unconsciously, by its practitioners as a legitimate expression of popular culture. Almost every informant was able to describe with little effort a large number of household remedies and their uses, and had well defined ideas about the causes, symptoms and cures of a wide variety of illnesses. Informants frequently spoke of their children as having been recently *ojeado* or *asustado* (attacked by the evil eye, or "frightened"), and cited cases of friends or relatives who had suffered from one or another of the folk illnesses here described and who had been cured by folk remedies. *Curanderos* do a brisk business in all places studied.

Interpersonal Relationships

A majority of *Servicio* programs work well, some outstandingly so. Many doctors and nurses manifest a high degree of sense of duty. Pride in the physical equipment of plants and genuine sympathy for patients are felt by many of the personnel. Nevertheless, in many cases there are serious problems of personal relations to be overcome: some centers do not operate to full capacity, in others there is an un-

necessarily high turnover of patients, and patient criticism of health services frequently is sharp. Three general criticisms are leveled at health centers, varying in intensity from country to country and center to center, but present in some degree in all places studied: frequent lack of tact and diplomacy on the part of doctors, nurses, and other personnel toward patients; time lost in going to and from centers; failure of many centers to treat sick children who were not previously enrolled, or who had not kept routine appointments.

(1). Lack of tact and diplomacy. In many cases doctors and nurses are impersonal to the point of frightening patients, and in some cases they are consciously or unconsciously rude. Part of this stems from ideas of class and status found in Latin America, with rigidly preconceived ideas of the manners and intelligence of people in all other classes, particularly those one considers below one. In other cases, apparent rudeness is completely unconscious and results from the desire of a nurse or nurse's aide to do a thorough job: she rushes through a long questionnaire, which bears little relationship to the family situation, meticulously fills it out, scolds the mother for her failure to do the impossible, reiterates ad nauseum the importance of keeping center appointments. In some cases mothers have come to centers begging to have their names stricken from the roles to avoid being annoyed by overly conscientious nurses.

(2). Loss of time. This is the most frequent single complaint about center services. Most appointments are by the day, and the patient must wait until he or she is called. For a busy housewife with many small children, a hungry husband coming home at noon, and morning marketing to be done, the loss of up to half a day is a well-nigh insurmountable difficulty, frequently resolved by not going to the center at all.

(3). Failure to treat sick children. This is the most bitter of all criticisms of center services. It illustrates the failure of the people served to understand the fundamental distinction between preventive medicine—the basic goal of health centers—and clinical treatment of the sick and ailing. In most centers doctors will examine and prescribe for sick children if they are already enrolled. But in many, a mother may not enroll a sick child, so that in her hour of need she is turned away, to become a bitter critic of health centers. Unquestionably, whatever the philosophy and logic behind health center programs, parental anger at being refused treatment for sick children has resulted in active antagonism to center activities on the part of many people.

IV. Program Recommendations

The success of public health programs depends to a very great extent on persuading a majority of people in a given area to cooperate with health authorities, to change certain habits, to give up old practices, and to adopt new ones. All cultures are resistant to change, including those of Latin America. As has been pointed out, most of the people toward whom public health programs are directed are equipped with a strong philosophy about the nature of health and illness, and have essential faith in their own system of folk medicine. They believe, as does the public health specialist, that health is a desirable state, but they often differ with him as to how it can be preserved or, if lost, regained. A basic problem, then, is re-education rather than education. Ways must be found to drive out those characteristics of folk medical practice and belief which are in fundamental conflict with the teachings of modern medicine, and to utilize those which are or can be made consonant with the goals of the medical doctor. This means imbuing the recipient peoples with the realization that hygienic living and modern medicine, particularly preventive medicine, are forms of personal health insurance which will help keep them in better health, help to lengthen their lives, to work more efficiently, and to enjoy life more fully than will adherence to traditional health practices. It means educating people who consider illness to be due primarily to magical causes or to divine will to believe in scientific concepts of cause and effect, of microbes and their power, and to act accordingly.

There is no easy way to achieve this goal. It seems quite obvious, however, that one important approach lies in recognizing the importance of folk medicine to the peoples concerned, and understanding its nature and function. If public health personnel are acquainted with prevailing concepts of folk medicine, in many cases these beliefs can aid rather than hinder the doctor—the good or the useful can be separated from the bad and the useless, and programs planned with this in mind. There are at least two ways such knowledge may be utilized:

(1). The ability of trained personnel to utilize folk concepts in interpreting and making intelligible modern medical treatments and preventive measures, and in persuading patients to adopt and follow through with recommended practices. This suggestion is based on the premise that people accept new ideas or techniques more readily if something exists in their culture which is or appears to be similar to the foreign element.

(2). The confidence which will be instilled in patients if it is apparent to them that the trained personnel understand folk concepts, even though they believe scientific ways are superior.

Occasional examples illustrating the validity of the first manner were found already to be in use. In Chile, as in the other countries, herbal teas form an important part of the *curandero's* pharmacopoeia, and popular confidence in them is great. For infant diarrhea some *Servicio* doctors prescribe, in addition to other remedies, the herbal teas in which they know the people have confidence. Drinking quantities of liquid is part of the treatment for diarrhea, and by the device of teas it is possible to ensure that the water is boiled and therefore safe. Were the doctors to say "Give the child lots of boiled water," mothers would be much less likely to follow instructions; but because the treatment is interpreted in terms of local belief they are convinced that the doctors know what they are talking about, and the child is therefore well taken care of.

Other examples in which a similar psychology might be employed were suggested by the anthropologists to Institute of Inter-American Affairs personnel:

(1). Ritual numbers, particularly "3," are frequently interwoven into folk curing. It was suggested that treatment might be prescribed in terms of injections or internal medicines on three successive days, or three times a day, or for

three weeks. Thus, deeply ingrained folk ideas of therapeutic measures might be utilized to ensure that the doctors' instructions are followed.

(2). In many parts of Latin America the placenta must be disposed of in ritual fashion. In some places the impersonal hospital disposition appeared to be keeping women from utilizing available maternity services. It was suggested that arrangements might be made to deliver the placenta to the family so that disposition could be made in the traditional fashion.

(3). In some places it is believed that a postparturient woman should eat only those foods she ate during her first confinement. Some women expressed hesitancy about going to hospitals for delivery for fear they would be forced to eat other foods which they felt would harm them. It was suggested that as far as possible mothers be promised the diet they felt they could eat, and that meantime primiparas be sought who had no such restrictions and could eat normal hospital fare.

(4). In Peru the concept of the "dirty stomach" is widespread. It was suggested that doctors' prescriptions might be more faithfully followed if, in the case of illness defined by the people as due to "dirty stomach," the doctor were to remark that the medicine would clean out the stomach. Or, if the problem were to convince someone of the need for a changed diet, it might be efficacious if he remarked that the prescribed diet was a preventive against "dirty stomach."

These suggestions aroused in *Servicio* personnel both interest and opposition. The prinicipal question was, how far can or must one go in compromising the standard medical approach? We were much impressed with the pragmatic nature of the peoples toward whom these health programs are directed. If a practice is observed to work well, regardless of how much it may conflict with folk belief, people tend to accept it. An illustration comes from the new maternity hospital in Quito. About one-third of all births in the city occurred in the old hospital. The new one has sufficient capacity for about two-thirds. A survey revealed that many complaints against the new hospital were based on folk belief: fresh air, considered dangerous, is admitted to the hospital; patients are bathed; they are sent home in five days, whereas the culture pattern calls for a stay in bed of up to two weeks. Nevertheless, in less than a year the new hospital was operating at capacity, and comments of the following nature were volunteered by townspeople: "Fresh air is dangerous, but there is plenty of it at the *Maternidad* and it seems to harm no one, so maybe after all it isn't dangerous." Bathing of patients, and their short hospitalization period were also criticized, but it was remarked that neither mothers nor children seemed to suffer as a result. Apparently in many cases if a good service is offered, not only will it be accepted, but the very act of acceptance does more to destroy erroneous folk belief than any conscious educational campaign. There seems to be no single rule to indicate the extent to which medical services should cater to or be recast in terms of folk belief, but the limit is considerably lower than we were inclined to believe at first glance.

In other ways the failure of public health personnel to understand folk medicine appeared to seriously jeopardize health programs. Although there were noteworthy exceptions, a majority of the doctors interviewed had only the slightest grasp of the importance of folk belief to their patients, and little concrete knowledge of customs and practices. Moreover, they possessed an almost universal tendency to deprecate such beliefs and to ridicule the people who hold them. Not infrequently in the presence of patients doctors remarked on their lack of culture, their ignorance, and their brutishness in failing to cooperate with him. In general, the doctors operated as if folk medicine did not exist, that as far as their goals were concerned it could be ignored. Though they generally felt that patients distrusted them, they did not realize that their attitude actually reinforced rather than broke down folk belief. By ridiculing their patients' ideas they contribute to a more or less pronounced dichotomy that already exists in the minds of many Latin Americans between "folk" illnesses and those recognized by medical science.

Because they have seen conclusive demonstrations the "folk" know that certain types of disease can be cured or prevented by the doctor, and so in spite of their natural distrust of him they seek his services when they feel he can help. At the same time they feel that there are other illnesses that are best treated by home remedies or *curanderos,* illnesses which are not understood by the doctor and whose existence he denies. These illnesses are generally those here described as having magical or psychological etiologies. If a child's illness is diagnosed as evil eye, obviously it is poor judgment to take the child for treatment to an individual who denies that there is such a thing. For example, in Valparaiso a public health nurse visited a home and found a child suffering from bronchial pneumonia. She asked why the child had not been brought to the health center for treatment and was told "the child is suffering from evil eye, and you know as well as I that the doctor does not know anything about the evil eye."

This dichotomy in the minds of the people is not hard and fast. Yet the common tendency of the doctor (or nurse) to ignore or ridicule folk concepts of illness undoubtedly reduces his effectiveness, for patients become more firmly convinced than ever that he has blind spots and, as a result, many genuinely sick persons do not receive proper medical treatment. There is a growing awareness of microbes in Latin America, but there is a marked tendency to understand by "microbes" those things that cause the illnesses the doctor can cure. Microbes have nothing to do with the evil eye, *susto,* and the like.

If patients could come to believe that doctors and nurses are familiar with folk ideas of health and sickness, and approve of some of its treatments (such as isolation, bathing, specialized diet, herbal teas), but feel that for many things they have better methods, it is very likely that the folk would have greater tolerance for modern medicine. There must be great numbers of people who would like to follow a doctor's recommendations but who fear to do so because of the accumulated repressive weight of folk tradition and the doubts which arise from feeling that the doctors are not familiar with the type of sickness with which they are afflicted.

If an obviously sick child suffering from fever, headache, and vomiting were brought to the doctor, and the mother did not hesitate to say "I suspect it is the evil eye," the doctor should lose none of his professional integrity by replying, "Well, let's see. There are many illnesses with similar symptoms, and my examination convinces me that in this case it is

such and such, and I recommend the following treatment." The doctor is neither ridiculing nor sanctioning the mother's belief—he is diplomatically bypassing it. As a specialist he points out why it is more likely to be something else, and as a sympathetic specialist his advice may very well be followed.

Other cultural factors of a more general nature also affect *Servicio* programs. A striking example comes from Mexico. In one large urban health center 43 percent of registered women desert prenatal treatment before delivery, the majority dropping out after the first gynecological examination. In a nearby semi-rural health center the loss is only 21 percent. Even if allowance is made for some variation because an urban population is more mobile and less stable than a rural one, there is a significant difference between the two centers. The explanation seems based on Mexican (and Latin American) ideas of decorum and modesty. The first prenatal examination comes as a great shock to most women. The intimate examination itself is embarrassing, and is doubly so because it is made by a man. In the small center the woman is carefully prepared for the experience: the nurse explains just what will be done, why it must be done, that it probably will happen only once during the course of treatment, and that she (the nurse) will be present all the time. In the large center the patients have little idea of what to expect. "It's best just to take them by surprise," was the joking attitude expressed by one doctor. In one Colombian center there is, practically speaking, no gynecological examination. The women refuse to submit to it partly because of their own feelings, and partly because their husbands are outraged at the idea of any other man having such intimate contact with their wives. Even in Chile, where health services generally are well advanced, it was noted in one large center that the gynecological examination, such as it was, was made by a midwife; the doctor barely looked at the patient beyond taking her pulse and listening to her chest. On the other hand, in a small center in El Salvador where, as in the case of the small Mexican center, women were well prepared by the nurse, little embarrassment was shown during examinations, and relatively few women abandoned treatment.

The impersonality of modern medicine here runs into a cultural barrier of considerable importance; prevailing concepts of modesty are incompatible with the requirements of medical treatment. It was suggested to The Institute of Inter-American Affairs that, at the very least, in all prenatal cases a thorough and sympathetic explanation be made to each woman. Ideally, women doctors should make gynecological examinations whenever possible.

In all countries communication between doctors and patients is a problem of greater or lesser magnitude. For a variety of reasons a significant number of patients after seeing the doctor do not understand what they have been told to do. In many cases the patient is nervous and uneasy in the presence of a man, particularly since she usually is of humble origin, and he of a much higher social status; she is unable to concentrate or to grasp what is being said. Development of greater rapport between doctors and patients will partially solve this problem. But it must be realized that the *manner* in which instructions are phrased is highly important. What appears simple and logical to an educated person may not be at all simple to a less well educated, often illiterate, individual. In the United States it is taken for granted that patients will understand what is meant by doing something "every three hours." Yet in much of Latin America such instructions are meaningless. For example, in a Mexican center the doctor told a mother to nurse her infant "every three hours." The anthropologist asked the mother at what hours she would feed the child. "At six, seven, eight, and so on," replied the mother. The startled doctor repeated his instructions, but upon being requestioned the mother still gave the same answer. Instructions in terms of time as defined by hours were meaningless to this woman. She had no clock, she was unable to tell time, and in her life experience it had never been necessary to grasp the import of time as understood in hours. In many other cases time was found to be meaningless, as far as instructions were concerned.

When significant numbers of a center's patients come from illiterate and low income groups unused to clocks, it would seem wise to work out local adaptations of the time concept in terms of things that have meaning to the people. In most cities there are factory whistles, municipal sirens, church bells, and so on, that sound at regular hours. Time points could be established with meaning for each area and instructions might be phrased in such terms.

A similar case was noted in Temuco, Chile, where pregnant women are told by the doctor to walk three kilometers a day if they feel well. This phrase appears to be taken directly from medical text books designed to be read by students and doctors. At a meeting at which volunteer nurse's aides were being trained, the nurse asked "How much exercise should a pregnant woman take every day?" All trainees promptly replied, "Walk three kilometers daily if you feel well." The anthropologist asked, "How far *is* three kilometers?" This precipitated a lively discussion. The women remembered that they had heard both the numbers nine and 27, and multiplying each by three decided that a pregnant woman should walk nine, 27 or 81 blocks. But they were unable to agree on which distance. (Apparently they had been told that a kilometer is equal to nine city blocks). As in the case of time instructions, what appeared to the doctor and nurse to be simple, clear expressions were of no use whatsoever because the people were not trained to think in the same terms as the doctors.

Bureaucratic hours and practices were found to constitute a considerable cultural barrier to full acceptance of some *Servicio* projects. In many parts of Latin America, government hours are from 8 a.m. to 2 p.m., or a similar time period. Allowing for the time it takes to "open" shop, as well as to close it, the effective hours are considerably reduced. Moreover, since full time doctors are the exception rather than the rule, many doctors put in only an hour or two a day at health centers, with considerable latitude with respect to arrival time. To be reasonably sure of attention, a patient must come early and await her turn. If some services could be re-scheduled for the afternoon (and this is done in a few centers), when mothers are less occupied, it is very likely that they would attract more patients, with a resulting increase in goodwill.

The humble pit privy may also be used to illustrate the importance of understanding the general cultural configurations of a country in which one proposes to work in public health. Privy campaigns of one sort or another probably have

been carried out in all Latin American countries. Public acceptance in some cases has been good, but all too often they end up as chicken coops or grain silos. Customary posture in defecating is perhaps the single most important fact bearing on the acceptance or rejection of privies. A coffee planter in El Salvador, in the interests of his employees, built a series of privies, one for each house, according to the standard American "riser" model. He was upset when his employees refused to use them. Finally an old man offered the suggestion, "Patrón, don't you realize that here we are squatters?" The planter ripped out the seats, replaced them with a perforated slab floor, and was gratified to find that public acceptance was general. Riser privies, for psychological or physiological reasons, seem to cause constipation among squatters. Similar cases could be cited from most other Latin American countries.

As a general rule in Latin America the perforated slab privy should be the basic working premise on which a campaign is planned, but other factors may override the traditional posture factor. Attempts to popularize this type in Xochimilco have met with little success. The village is sufficiently close to Mexico City for the inhabitants to realize that the bowl-seat toilet is used by cultivated people, and that the use of the slab marks one as a country yokel. Hence, in this village success of a privy campaign probably will depend on the development of cheap bowl-type equipment. Prestige here is more important than posture.

But other attitudes may also enter the picture. After an earthquake in El Salvador in 1950 the government built temporary camps for the homeless, including fine, modern privies. Their acceptance was limited. Finally it was realized that the people were accustomed to satisfying their bodily needs in the bushes, under the shade of trees. They liked the outdoor atmosphere. When the privies were moved from open fields and placed under trees, with roofs left off, the psychological requirements for defecation were met and everybody was happy. Twenty years earlier Rockefeller Foundation doctors in Java had discovered precisely the same thing!

In La Dorado, Colombia, *Servicio*-built privies appear to meet all cultural specifications, but they are not well accepted. The anthropologist found an important factor was the belief that bad odors in themselves are carriers of infection and causes of illness. Many people avoid privies because they usually smell badly; they feel they are observing good hygiene in not using privies, because they are avoiding contact with sources of illness.

In many respects the most interesting conclusions derive from the comparative analyses of results from all countries. The question of preventive medicine versus curative was particularly revealing. Following standard North American practice, in health centers the emphasis has been on preventing rather than curing illness. As previously pointed out, this has given rise to the bitterest of all criticisms leveled at health centers. We felt that improved health and better living conditions may very well come more rapidly through a process of education and persuasion which frankly recognizes the sick individual as an initial target. Fundamentally the preventive medicine specialist must gain the sympathetic ear of the people. Movies, lectures, and demonstrations will be treated with suspicion, and attendance at them will be small among people who are inherently skeptical of the apparent good intentions of government programs. But the mother who has seen a dangerously ill child restored to health will probably have more faith in the doctor's advice to boil milk than the mother who has been turned away because the center does not treat the sick.

Whatever the merits of a public health program based on preventive medicine, the fact remains that the average Latin American is interested in doctors and nurses because they can cure his ills. In most cases he avails himself of *Servicio* services, not primarily to remain healthy, but to get well. A survey of 100 families was taken in the area of the Beatríz Velasco Alemán Center in Mexico City to find out who patronized the center, and why. Half of the people interviewed had never been to the center. Of the approximately 50 families that had gone, 25 went because they had a sick child that needed attention. An additional one-fourth went because they could get free milk. A number of others went because they needed chest X-rays or other clinical services. Only three or four gave as their main reason for going their desire for a routine examination of an infant. Conversely, one of the principal reasons why mothers had not taken their children was the fact that they were well, and why should one take healthy children to see a doctor?

This reluctance to avail one's self of medical advice when one obviously is healthy is deep-rooted in Latin American concepts of well-being. Health, it is thought, consists in feeling well; it is not possible to be ill if one feels well and has no evident symptoms of disease. Since sickness is due in large measure to fate or luck, or carelessness in personal habits, there is very little a healthy person can or ought to do to keep himself in this condition, at least as far as a doctor's attentions are concerned. Treatment is sought when a person becomes unmistakably ill. This feeling about health is akin to the Latin American concept of machinery maintenance: if a machine runs well obviously it is in good condition and needs no attention; it is clearly logical to repair it only when and if it breaks down and ceases to function properly. With such a point of view, periodic check-ups simply have no logical explanation in the minds of the people; they feel they are doing the center a great favor in keeping appointments, rather than that they are being helped. At present, there seems to be no stimulus sufficiently strong to keep healthy people coming to health centers, unless certain concessions are made toward what the people believe they need.

Moreover, in much of Latin America there is a deep-seated distrust of the motives and knowledge of doctors. Many people feel that the native *curandero* knows more than a medic, that doctors are conceited and actually know very little. Everyone can and loves to tell examples of how the doctor failed and the *curandero* effected a cure. At the same time, the average Latin American is pragmatic by nature. One of the reasons why *Servicio* programs should also stress curative medicine is that it is about the only way the doctor can show the patient that he knows what he is doing. To illustrate, in Temuco, Chile, a bad whooping cough epidemic started in 1951. Fortunately, health authorities were in a position to vaccinate a large number of children and arrest the spread of the epidemic in a graphic fashion. There is no

doubt in the minds of most mothers in that town that the doctor is a good man to know when whooping cough threatens. And this faith spreads to other inoculations as well; BCG vaccinations are being carried out with a high degree of cooperation from all.

The satisfaction of the patient in receiving a public health service which he or she wants, and the satisfaction of the doctor and nurse in offering a service the public desires, seem to promote an atmosphere in which suspicion and tension are reduced to a minimum, and in which, as a consequence, really good preventive measures can be effected. In the Cerro Barón Center, Valparaiso, Chile, where there is frank recognition that curative is just as important as preventive medicine, and where no sick child is ever turned away, more than half of the visits are "well baby" visits where the mother has brought the child for a routine check up.

If the premise is accepted that in the long run better world health will come from preventive medicine, the fact must also be recognized that in Latin America, at least, a sizeable amount of curative services must be available to develop the conditions essential for a preventive program.[4]

The problem of good interpersonal relationships between *Servicio* staff members and patients turned out also to be linked with the question of relative emphasis placed on curative versus preventive medicine. When the initial studies were made in Mexico, Colombia, Peru, and Brazil, significant differences in the quality of these relationships were noted. To illustrate, in Brazil there seemed to be a closer understanding between staff members and patients than in Peru. The first hypothesis advanced to explain this situation was rooted in the question of class structure. In Latin American countries with considerable Indian populations one finds that educated city people tend to look upon the lower classes, and particularly Indian groups, as beings from another world, condemned by nature to an inferior existence, and incapable of being assimilated as useful members of national life. At first glance it seemed as if in countries where these conditions prevailed the quality of interpersonal relationships was generally poor.

Following subsequent work in El Salvador, Ecuador, and Chile it became apparent that this tentative formula did not hold. In Ecuador the social gulfs are about as marked as in any American country, and yet doctors and nurses on one hand, and patients on the other, appeared generally to get along well. Tensions and frictions seemed much less marked than in Colombia, where the socio-economic level is much higher, and where class differences are less marked. Our present tentative hypothesis—and it should be further tested—is that in those countries where there is frank recognition that for a long time to come curative medicine must be an integral part of any public health program, relations between staff members and the public tend to be good. Conversely, in those situations where curative functions are grudgingly accepted, or avoided entirely, interpersonal relations are poor, and public health programs are much less successful.

V. General Anthropological Conclusions

The applied context proved to be an excellent testing ground for a number of anthropological concepts and premises. It indicated, to the satisfaction of those who participated in the work, that certain fundamental theoretical concepts and field techniques of anthropology can be put to use to help solve the human problems involved in technical aid programs of the type here described, and that simultaneously their own validity is further strengthened. Five general concepts or methodologies have been singled out for discussion.

(1). *Functionalism.* The real meaning of the concept of culture as a functional unit is nowhere more forcibly brought out than in the study of the introduction of western European technologies and ideas to lesser developed parts of the world. In terms of a public health program, it means that health and sanitation are not isolated parts of the life of a whole people. They are related to education, to social security, to economic productivity, distribution of income, city planning, and a great many other things. Changes in the level of health in any given place may result from improvements in the aspects of culture just mentioned; conversely, changes that can be brought about by planned activity are limited by and dependent upon the changes occurring simultaneously or those that can be brought about in these related aspects. In the case of public health programs in Latin America it was found that there has been a considerable tendency to plan programs as isolated units, without taking into consideration the limitations imposed by other aspects of culture, such as availability of trained personnel, social structure of local peoples, economic ability of a community to support health services, patterns of work and travel, and the like. The fallacy of this point of view may be illustrated by a specific project. In this case, planning was carried out with greater care and thought than in many others. There was recognition that a successful public health program depends to a very considerable extent on raising the general economic level of the people. There was recognition that training in home economics and practical farming were integral factors which would contribute to the success of the program. It was decided, therefore, to work in an area where it would be possible to have the cooperation of another agency which was carrying out grass-roots work in agriculture and home economics. Experimental gardens were set up. Training in home economics was introduced. A health post was established, and arrangements were made to bring a doctor and nurse several times a week to this small village for both preventive and curative medicine.

Nevertheless, in spite of such planning—excellent as far as it went—when a complete ethnographical analysis was made it became apparent that certain cultural characteristics in this village render it unlikely that some of the main projects will have any great permanent degree of success. The keystone of the environmental sanitation phase of the work consisted

4. The importance of understanding the basic cultural premises of a people in planning health programs is emphasized by comparing the Latin American picture with that of India. In the latter country the Hindus are said to be "more concerned with health than with illness, and prevention of disease is thought to be of greater importance than the treatment of disease." In the prevailing *Ayurveda* system of medicine "there has always been a strong emphasis on the prevention of disease." (Carl E. Taylor, "Hindu Medicine and India's Health," *The Atlantic,* Vol. 190, No. 1, July, 1952, pp. 38-42. Quotations from pp. 39 and 42 respectively.) A public health program based largely on preventive medicine presumably would stand a greater chance for success in this cultural milieu than in Latin America.

of a privy campaign. Slabs for pit privies were cast locally, and given to each of the 100-odd houses in the village. It was expected that with this preliminary aid, within several months most of the slabs would be in place in back yards with the householder bearing the cost of installation. Nevertheless, six months later less than half the slabs had been put in use. The majority were still lying against the front of the houses where they had been placed, overgrown with weeds, and apparently forgotten by the householders! What are possible reasons for this situation?

A census of this village of 600 people revealed the following facts: The village is highly unstable in terms of social organization. About half the inhabitants have lived there for five years or less. They do not consider themselves to be really permanent members of the community, but rather are migrating from one part of the country to another, stopping off here temporarily while awaiting the opportunity to move on. They feel no attachment to the community, no stake in its future, and have no interest in making capital investments in something they may not be around to enjoy. A measure of the social disorganization of the village and of the transitory nature of the population is the fact that five professional prostitudes ply their trade, an unbelievable figure in comparison with the average settled Latin American village.

Level of income likewise is depressed. Land is marginal, wages are low, and nearly everyone must think carefully about each expenditure, weighing alternative purchases to determine maximum enjoyment or utility. The least expensive houses in this village are worth from $18 to $35. Instructions for building of privies are fairly precise, and the cost is about $10. This means that people who know very little about environmental sanitation and whose cultural background does not allow them to understand or realize the importance of pit privies, are being asked to make an investment of from 25 percent to 50 percent of the total value of their homes. It is quite obvious that most of these lower income families can never be persuaded to make an investment of this magnitude.

From the census it was also discovered that a considerable number of people in this community live rent-free in the homes they occupy. The owners are away for extended lengths of time, or have migrated to other places but have kept their old homes. They permit relatives or friends to occupy the dwellings in order to have them cared for. Since the actual inhabitants are not the owners, and might be put out on a moment's notice, they are unwilling to spend a relatively enormous sum to build a privy. And since the owners are absent they have little incentive to make such a capital investment when they will not be around to take advantage of it.

It is too early to report the outcome of this privy program, but at present the chances for success seem rather slim.

(2). *Cultural Relativism.* Few concepts of anthropology have received more attention in recent years than that of cultural relativism. Emphasis has been on the innate "right" of peoples to do things in their own way, to avoid judging the ways of one group by values of another. Quite apart from moral implications, an awareness of the significance of cultural relativity should be an essential tool of all persons engaged in planning or carrying out technical aid programs in cultures other than their own. North Americans are particularly guilty of assuming that if something works well in the United States it will work equally well elsewhere, and that it will be "good" for those persons lucky enough to be exposed to it. Data from El Salvador reveal how this philosophy not only unjustly "judges" long-standing and essentially "good" practices (by current North American standards) but also may defeat the desired ends of a particular program.

About 15 years ago several Salvadorean doctors were brought to the United States under the auspices of private foundations for training in public health. In the United States at that time it was considered best practice to feed infants on a regular schedule—every three or four hours. This schedule became a part of public health teaching and practice in Salvador. Today one of the primary considerations of home visiting public nurses in El Salvador is to urge the mother to nurse her infant every three hours. This was observed to be almost a matter of religious faith, and it was implied that if a child were not well the trouble was that it was not being fed regularly. In most homes there were no clocks, and in many even if there had been the mothers would have been unable to read them. The idea of feeding a child every three hours goes directly against the child-nursing pattern in Latin American countries, where it is customary to pick up and feed a baby whenever it demands attention. Nevertheless, the nurses hammered away on this point, the mothers looked embarrassed and uncomfortable, and the rapport which should exist between nurse and patient was endangered—ironically enough doctors now say a child should be fed when it wants to be fed! So, with the best of intentions this American pattern has produced unfavorable results in El Salvador. Had mothers been permitted to follow their natural inclination they would have done essentially the right thing, the nurse could have devoted her time to other matters, and a more fruitful and friendly relationship might have been established.[5]

(3). *Creole Culture.* Gillin's concept of Creole culture, as an emergent major variety of Western Civilization, in which the individual cultures "seem to have a common general framework and a common tone which enables them to be seen collectively as a cultural design distinctive from that of other varieties of Western Civilization" has met with a mixed reception from anthropologists.[6] Insofar as the data of this paper are concerned, they appear to bear out Gillin's hypothesis. The "common general framework and common tone" which characterizes the nature of folk medicine in all Spanish America, at least, if not also Brazil, is striking. The extent of this unity is illustrated by the fact that knowledge of folk medicine patterns in any one (or several) Spanish-American countries made it possible to work immediately and effectively in countries where no anthropological data were available. Likewise, the action patterns of people in all countries studied, from top *Servicio* personnel to patients, seem to fall well within a "common general framework and common tone." Under similar circumstances people in Mexico react very much like those in Colombia or Chile, a reaction in many cases very different from that which would be engendered by the same situation in the United States. Comparative

5. This example also illustrates the concept of functionalism.

6. John Gillin, "Modern Latin American Culture," *Social Forces*, 25:243-48, 1947, p. 244.

analysis of our data impressed us with the similarities from country to country much more forcibly than many years of study concentrated in one or a few countries had done. Conversely the local differences seemed much less important than we had expected.

(4). *The Comparative Method.* This is often stated to be the most distinctive of anthropological tools. It appears to have been utilized in the applied field to a lesser extent than many other anthropological techniques. As field workers we feel that perhaps the most distinctive contribution of this research lies in the application of the comparative method to a specific practical problem. Though worthwhile data were obtained in each country, data which in themselves contribute to the functioning of each local program, the major ideas come from the opportunity to analyze the results arising from common stimuli in varied cultural settings. The evidence indicates that general cultural patterns exist, and that regularities are sufficiently pronounced so that on the basis of the seven countries analyzed useful guide lines can be laid down which will facilitate the prosecution of public health programs in other Latin American countries. Although it is speculation, it also appears probable that these regularities are of sufficiently wide validity to supply useful guide lines for public health programs in other parts of the world, where similar culture types exist. Certainly, the comparative method will prove to be one of the most fruitful in the development of applied anthropological science.

(5). *The Justification for Generalized Anthropological Field Work.* The great bulk of existing cultural anthropological data have been gathered with no specific problems in mind other than the desire to describe as completely as possible the way of life of the peoples in question. This method—if such it can be called—has been increasingly criticized in recent years as illustrative of anthropologists' lack of a sense of problem. Whatever the merits of this criticism, and some is certainly justified, the existing mass of accumulated Latin American data of a generalized nature, pointed toward no specific problem, made possible significant research in a surprisingly short time. Although our knowledge of Latin American culture patterns is pitiably small in an absolute sense, it is relatively great compared to that for most other parts of the world. For problems connected with technical aid programs many of these data are particularly good, for in recent years considerable attention has been focused on contemporary non-Indian peoples—precisely those who are most concerned with international aid. Today, the state of our knowledge of contemporary Latin American cultures may be compared to a plateau, uneven in profile, relatively high in some points and low in others, but altogether covering most aspects of human life. This plateau is the result of innumerable studies, some extensive, others intensive, some superficial, others penetrating, some recent, others old, but together forming a fairly solid base, a useful jumping-off point for the analysis of a wide variety of specific problems. The existence of the broad base of generalized data made it possible for field anthropologists to concentrate on the lacunae in the printed record, the specific data which bore upon the health problem as outlined. Thus, in a very short time—in from one to two months in each country—it was possible to come to meaningful conclusions. Furthermore, the same generalized anthropological sources that were useful for a health program would have served equally well if the problem had been stated in terms of agriculture, housing, education, or any of the other fields in which technical aid programs are being carried out.

Our experiences indicate that many types of applied research may be carried out in far less time than anthropologists usually believe, if the investigation is made in an area in which the preliminary spadework has been done, and if this preliminary spadework is of the generalized all-inclusive type. This does not imply that all applied anthropology will be in the nature of spot studies, of "quickies." The need for long-range, painstaking analysis is just as great as ever. It does mean, however, that relatively few anthropologists working under favorable conditions can produce results much more rapidly than many persons believe. And it emphasizes the fact that field workers, oriented toward the current rage of problematical studies, should not be led to slight the traditional anthropological obligation of gathering as much data as possible on all aspects of the culture under investigation. This broad base of accumulated scientific capital, this body of generalized data painstakingly acquired, must of necessity continue to be the anthropologist's stock-in-trade, his indispensable working tool. The accumulation of these basic facts, of theoretical concepts and operational procedures, is a dynamic enterprise in that a final goal can never be reached. The discovery, classification and interpretation of new facts merely points the way to continuing research. Simultaneously, however, this process makes possible the solution of technical problems of steadily increasing complexity and variety, and consequently of expanding utility in the practical or applied context.

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Technological Change:

Some Effects on Three Canadian Fishing Villages

*Stephen A. Richardson**

I. Introduction

There are two small islands off the east coast of Canada whose inhabitants make a livelihood by traditional fishing techniques. Since World War II they have been greatly disturbed by the encroachment of American and Canadian draggers onto the local fishing grounds. These draggers are motor-driven boats 60 to 90 feet in length which fish with a large bag-like net that is towed along the sea bed. At about the same time the draggers appeared off the islands the fish catches of the local fishermen began to decline, the cost of fishing equipment to rise, and the price of fish to fall.

In Britain, Europe, the United States and Canada, during the past century the dragger (or trawler) technique of fishing has gradually superseded schooner and inshore hook-and-line fishing. In some cases this change has been accompanied by the centralization of fish-processing ports and the gradual disappearance of small fishing villages. Dragger fishing has been strenuously opposed by fishermen who use hook-and-line techniques. In Canada this operation has been strong enough to restrict the operation of Canadian draggers.

The purposes of this study, made in 1950, were:

1. To investigate some isolated communities which may in the near future experience rapid technological change.

2. To analyze the reasons for the local fishermen's hostility toward a particular technological change, namely, the introduction of the dragger.

3. To consider the process and effects of past technological change on the islands.

4. To predict the process and effects of the possible introduction to and adoption of the dragger by the islands' fishing industry.

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II. General Description of the Islands

To reach the islands from the nearest mainland town, one must travel 30 miles over a bad road (now being rebuilt) and then take a ferry through a sea passage made dangerous by strong currents, a large rise and fall of tide and, at times, impassably rough water. The ferry operates only in good weather and during daylight hours.

A large part of the population is descended from English-speaking settlers who came to the islands almost 200 years ago. In appearance the islands have not changed much from the description attached to a map made in 1872.

"The (main) island is of a mittling quality, much Schwamp, through the whole Island, on the water Syden N.W. & S.E. stony and covered with the kinds of wood viz: Black and yellow birch, Betch, spruces and some fir, but I saw no pines there fit for his Majestys use."

The islands are now partly covered with second growth timber, and much of the land that was cleared for farming is unused and overgrown. There are three communities of about 500 people each.

The predominant form of subsistence on the islands is fishing. This may be shown by the following estimate of the numbers of people in various jobs. The numbers are approximate because many people have several different occupations which they practice at the same or at different times of the year:

Occupations	*No. of persons*
Fishermen	250
Persons connected with processing the fish	140
Farmers	26
Store keepers	17
School teachers	7
Ferrymen	6
Lighthouse keepers	5
Miscellaneous	49
Total	500

Apart from the lighthouse keepers, some of the farmers, and the ferrymen (say 20 jobs), about 96 percent of all forms of subsistence are directly or indirectly dependent on the fishing industry.

The Fishing Industry

Fishing Techniques

Some of the common characteristics of the fishing methods used on the islands are: (a) the fishing grounds used are inshore, within 10 to 15 miles of home ports; (b) the fishermen are rarely away from their home ports for more than six to 12 hours; (c) the boats used are typically from 30 to 45 feet in length and are powered by gasoline engines; (d) except for seining, weir fishing and herring netting, all fishing is done by hook-and-line; (e) fishing profits are divided on a share basis, the usual practice being for the owner of the boat to pick as his partner either a relative or the best available fisherman. The owner takes two-thirds and the partner one-third of the profits and share the running costs of engine fuel and bait, when bought; (f) during the summer months there is a great deal of fog and considerable skill is needed to find the fishing grounds and to make landfall on the return trip. Navigation is by dead reckoning using compass and soundings.

The following techniques used in fishing are ranked roughly from least to most complex in terms of social and economic cooperation required:

Technique	*Number of men required*	*Approx. number of men employed in each technique*	
Drailing	1 - 2	200	
Handlining	2		
Line trawling	2		
Seining	5 - 7	30	These men also use other fishing techniques.
Weir fishing	10	20	

Lobster fishing is an important source of income but will not be considered in this paper as it is probably not threatened by the dragger. The lobster season lasts for six months during which time there is little other fishing in progress. It requires two men to work as partners.

In deciding what type of fishing technique he will use a fisherman will be guided by a number of factors. Some of these are: (a) the season of the year and the type of fish on the grounds; (b) the investment required for different types of fishing. When fishing is good and prices are high, the largest profits tend to come from the type of fishing requiring the highest investment. When fishing is poor and prices low, and the chances of gaining a profit over and above the initial and current investment become more risky, techniques that require a minimum investment are more likely to be chosen; (c) the price obtainable for the different kinds of fish; (d) the type or types of fishing the person most enjoys; (e) the skills learned when he began fishing; (f) the type of fishing that is dominant in his community; (g) the type of equipment owned by his family and the money available for buying equipment.

Each community has tended to specialize in a certain type of fishing and to use certain grounds. Even when it is known that fishing is very good on one ground, fishermen who do not customarily use that ground will not encroach on the area. This division of fishing grounds and methods is long established and accepted.

Cod, haddock, pollack and hake are the principal fish caught, but they are found on the local fishing grounds for part of the year only, so the annual cycle of fishing is organized to best take advantage of the seasonal movements of the fish.

Processing the Fish on the Islands

There are three main forms of organization which deal with the processing of the fish after they have been caught and taken ashore from the boats. These are local fish buyers, subsidiary fish factories owned by large outside corporations, and a Cooperative Society, which are represented in the three communities on the two islands in the following numbers:

	Coops	*Local Fish Buyers*	*Outside Owned Fish Factories*
Afton	1	4	0
Fairhaven	0	1	2
Nereton	0	6	0

In the following description of these organizations the focus is on the social aspects of the plants.

Local Fish Buyers. The fish plants owned by the fish buyers are very similar in appearance. They are long, low sheds built at right angles to the shore line with one end of the shed backing onto the shore road, and the other end hanging out over the water supported by heavy pilings. The boats land their catches at the outer ends of the shed where the fish are weighed and sorted. After being processed in the sheds the fish are either marketed fresh, dried, or pickled.

The businesses are run by local families and often remain in the same family for several generations. Operating in conjunction with the fish business, there is usually a general store and a gasoline and oil service station which are normally run by members of the immediate family or close relatives.

The social structure of the fish plants has three levels:

1. At the head is a member of the family who owns the business. His main functions are to find and maintain markets for the fish, deal with the fishermen in establishing contractual relations to insure that the plant will receive as far as possible the required supplies of fish throughout the season, hire the help necessary for running the plant, handle the financial aspects of the business, and comply with relevant government regulations. In his role as liaison with the outside world, he often has to leave the community on business trips.

2. The shed foreman supervises the work operations. He works along with the shed workers, looks after the interests of the firm when the owner is absent, and weighs in the fish as they are taken out of the boats. The shed foreman is generally a year-round job that is paid on a weekly rather than hourly basis. As a rule he was formerly either a worker in the plant or a fisherman.

3. There are usually from three to five shed workers under the supervision of the foreman. Their work is seasonal and lasts from about May to October. While the plant is closed down the men have other activities such as lobstering, helping on farms, and doing odd jobs. One of the incentives to take these jobs is that if they work the required number of days

per year they can obtain unemployment insurance for which few other workers on the islands are eligible. The regular working hours are 7 a.m. to noon and 1 p.m. to 5 p.m., six days a week, although the hours and quantity of work are to some extent determined by the fluctuations in the volume of fish landed. When heavy catches are landed the men have to work overtime in order to get the fish dressed and prevent their quality from deteriorating. During bad weather when the fishermen are not at sea the shed workers are kept busy kenching pickled fish, drying and packing the fish, cleaning the sheds, and preparing the fish by-products. The job is regarded locally as disagreeable. After a while it becomes difficult for the workers to rid themselves of the smell of fish; working with knives results in cuts which are likely to get poisoned, and the repetitious tasks of gutting, cleaning, or splitting the fish are not relished.

Outside Owned Fish Factories. The external appearance of these factories is similar to but larger than the locally-owned fish plants. Their chief product is canned chicken haddie, but they also produce smoked finnan haddie, dried fish, and the by-products of liver oil, fish meal, hake sounds, and fish skins. The present factories have been operative on the islands for about 30 years.

In summarizing the social organization of the factories, only the main differences between them and the locally-owned fish plants will be described.

1. The organizations are directed by local men who have worked up to the position of manager. They carry out policies made by the head office of the companies, and have little to do with the finding and maintenance of markets for the fish.

2. In addition to the shed foreman who supervises the dressing of the fish there is a senior foreman who supervises the canning operations.

3. About 25 men are employed to dress the fish, manufacture by-products, and do some of the canning operations. About 20 women pick the cooked fish meat from the bones, and pack and weigh cans. Apart from a greater division of job operations, the working conditions are similar to those of the locally-owned fish plants. In neither the factories nor locally-owned plants is there much possibility of promotions for the workers, who are not unionized and have no formal collective representation.

In addition to the line of organization there are a few staff jobs such as bookkeeper, trucker, and manager of a locally-owned store.

The Cooperative. The Cooperative was organized in 1945 by the local minister as a marketing organization and supplier of gear for its members. A credit union was also started but was disbanded for lack of support.

The product of the Coop is dried fish. The processing of the fish is organized very differently from the other fish plants. Traditionally, all the fishermen on the islands dressed, pickled, and dried their own fish. The selling of the fish was an annual event that took place at the end of the fishing season. From about 1914 on the fishermen began selling the fish directly out of their boats to locally-established fish buyers. This provided a weekly instead of a single annual cash income, and also saved the fishermen the time and labor of dressing their own fish. The Cooperative members still follow the traditional practice and dress and pickle their fish in small privately-owned "fish stands," which are small sheds facing onto the shore road at the heads of wharves where the fish can be discharged from the boats. The members bring their pickled fish to a large shed owned by the Coop where they are dried, packed, and stored until they are trucked off the islands to the parent organization which handles the marketing operation.

Largely due to the failure of the credit union, the lack of working capital is a serious handicap for the Coop. Prior to joining the Coop the members were accustomed to being paid weekly for their fish. At the beginning of the season when money is most needed, the Coop cannot obtain cash for the fish until they have been marketed by the parent organization. Therefore there is a lag between the time members hand in their fish and the time they are paid, which the Coop endeavors to reduce by borrowing from the parent organization.

The Afton Coop has 44 members or about half the fishermen in the community. Twenty-five of the 29 seine fishermen who work in crews of five to seven men are members, and two of the main leaders in the Coop are also the heads of seine crews. Predominantly the Coop members are the younger men.

The Coop is organized formally in the following way:

1. Nine directors are elected by the members. They direct and supervise the business of the Coop and any salaried employees, make policy decisions, and report their activities to the membership.

2. The president and vice-president are elected by and from the board of directors. The president presides at meetings and represents the Coop when necessary, and the vice-president takes over these functions in his absence.

3. A secretary-treasurer is appointed by the president. All the Coop officers are fishermen with the exception of the minister who was the founder and first president. A salaried manager runs the general store which is financed by the Coop, and supervises the work of two paid men who carry out the drying and packing of the fish. He reports to the directors at their monthly meetings.

Personal Relationships in the Fishing Industry

Cooperation and Competition Among Fishermen. There is a strong tradition of cooperation among fishermen in times of danger and loss, and in the safeguarding and recovery of gear. A fishing boat which has broken down at sea will be towed back into port by another fishing boat and no salvage money or fee will be demanded. If a boat is lost in a storm or by fire, the other fishermen will contribute toward a new boat. This mutual help does much to mitigate the risks and dangers inherent in fishing.

To my knowledge the only sustained economic cooperation among fishermen now practised on the islands is the partnership in the different types of fishing, and the Cooperative. In 1939 the fishermen at Fairhaven formed a union under the leadership of one of their members. They went on strike for a week and refused to sell their fish to the local buyers because the fish prices offered in Fairhaven were below the outside prices. After this, fish prices began to improve. A year later few fishermen would pay dues and the union was subsequently disbanded.

There have been a few unsuccessful attempts to start unions in order to form a marketing Coop. A number of reasons were offered for these failures. (1) Lack of business and cooperative experience among the fishermen. (2) Opposition on the part of the existing fish plants. (3) The lack of trust between fishermen, who suspect that others might be getting away with something or making more out of it. The initial success of the one Coop is largely attributed to the fact that the founder and leader is a minister who is trusted by the fishermen and who does not obtain large financial gain from the leadership.

In each community one or two men have the title of "high-line" fishermen. The title indicates that the holder is a "hard fisherman" who will go out in bad weather when few venture to fish, and that he is the man who over a long period of time maintains a high level of catch. Considerable prestige is attached to being "highline" and there is great competition among the fishermen to achieve and maintain the title. The holder also, of course, has the largest current income. Rivalry among the fishermen to get the best catches is a source of unending interest and discussion. If the fisherman lacks the ambition to be "high-line" he will sleep instead of going fishing when the weather looks bad, or when he does not feel like getting up. The fishermen's working hours are dictated only by the tides, the accepted principle that no one fishes on Sunday, and his need for income.

Relations Among the Fish Buyers. Although the buyers are in competition with each other and have independent businesses, they cooperate informally in a number of ways such as formulating fish price policies, supplying fish to buyers who do not have enough to fill their orders, and discussing business problems. This cooperation takes place within each community and to a lesser extent among the island communities. Informally, the local fish inspector does much of the liaison work among the buyers. A recent development has been the joint ownership by two local buyers of the equipment necessary for the preparation of by-products and artificial dryers for salt fish.

Relations Between Fishermen and Fish Buyers. The fish buyers feel a strong obligation to buy the fishermen's catches and they supply most of the fishermen with gear. During the depression of the thirties they gave credit to a large number of fishermen. The fishermen have ambivalent feelings towards the fish buyers: on the one hand, they are dependent on them and respect the leadership the buyers give to the community in many cases; on the other hand, they feel jealous and resentful of the profits they feel the buyers make for the work they do.

The buyers feel the fishermen do not appreciate the responsibility and resourcefulness that is inherent in their business, the risks they must run in setting prices at the beginning of the season, and in finding markets and getting the fish to them.

Community Relations

In summarizing the forms of organization that work to satisfy other than subsistence needs, only those social relations have been selected that are relevant to the later discussion on the introduction of the dragger.

Associations

Social activities are related closely to the annual fishing cycle. During the summer months the fishermen work long hours and social activity is at its lowest ebb. Most social activity takes place during the winter months when storms, short days, and cold bring fishing almost to a standstill. The three main men's associations are the Masons, The International Order of Odd Fellows, and the Canadian Legion. Their degree work and social activities provide widespread training in social leadership and involve much visiting between communities. Each association has a high ratio of officers to the total membership and the annual elections of officers give a variety of men experience in the different status positions. Although social and organizational activities predominate, the associations organize material and financial aid to people who have suffered losses; they are closely related to church activities, and have some measure of political influence. The duties of the leaders of the associations bring them in contact with a number of people off the islands.

The Church

The Baptist and Church of Christ Disciples are the two leading religious denominations. The church doctrine stresses (a) refusal to recognize human authority in the church; (b) that churches are independent in local affairs; (c) that although the pastor and deacons form the church committee, they have no authority except that delegated to them by the congregation; (d) that the pastor is considered a member of his church and is amenable to its discipline. The ministers on the islands who have become important secular leaders have not done so by virtue of any authority derived from their church office. Ministers brought up in towns do not find adjustment to the islands easy, and some difficulty has been experienced in finding and keeping ministers for the island churches. The deacons take over the church affairs in the absence of the minister.

Government

The trend away from local toward centralized government has been slowly depriving local government of its powers. The offices of local government have remained unchanged in name since 1880. However, most of these offices today are little more than titles and few people on the islands know the names of those who hold office. Some of the changes that have occurred in local government are: (1) supplementation of law enforcement of the local authorities by Royal Canadian Mounted Police, who are called in when the local constables require assistance; (2) disappearance of the local justice of the peace and the trial of any cases on the islands; (3) less control of the allocation and spending of tax monies for public works, schools, and social security benefits.

Education

As soon as boys reach the age at which they may legally leave school, they are faced with a difficult decision. If they stop school and go into fishing they can begin earning money and quickly achieve a man's status. On the other hand, if they remain at school for further education they may lose touch with their friends who have become fishermen, delay the attainment of adult status, and later must leave the islands to obtain vocational training. Advanced education and voca-

tional training also mean that the boys will almost certainly settle away from the islands where there are few occupations open besides fishing. In a school photograph of the 11th and 12th grades taken in 1915, at which attendance was not required by law, of the 34 in the photograph one member of the class counted only four who had remained on the islands. Some of the present leaders are men who finished school during the depression when there was insufficient money to support their further education away from the islands. Some indication of the choice of future vocation comes from essays written in 1950 by pupils between the 4th and 7th grades in one of the schools on "What I Am Going to Be When I Grow Up." Not one of the boys chose fishing as a vocation.

Leadership

The leaders on the islands were identified by the following methods: interviewing; holders of formal offices in the organizations; content analysis of the county newspaper; interviews with men who were called on to represent their communities or the islands, many of whom are not fishermen. These leaders fall into two groups. (1) The older group of men, aged from 40 to 60, who serve as representatives and ambassadors from the islands. (2) A younger group who play roles in the internal affairs of the islands, especially in the men's associations.

The irregularity of working hours and the lack of contacts outside the islands are handicaps to the fishermen attaining leadership positions as compared to those in occupations such as fish buying.

Patterns of Cooperation

There is considerable evidence to indicate that for social purposes, the islanders have an ability to function in and among fairly complex organizations, and that there is a highly developed type of informal communication on the islands. I looked for examples of cooperation other than those shown in patterned social interaction. The most complex attempt that I learned of was an unsuccessful effort to start a hospital on the islands. The description of this attempt and the use of this case as a stimulus in interviewing were a valuable means by which to learn of people's sentiments concerning the potential ability of the islands to cooperate on an economic basis.

Fishermen who have left the community experience great difficulty in adjusting to work schedules dictated by factory organization or business requirements, as well as to working under supervision.

The evidence summarized in this article supports the hypothesis that economic cooperation on the islands is carried out most frequently by the primary family and with close relatives, and that outside of family cooperation fishermen have little experience or skill in economic cooperation.

III. Some Economic, Technological, and Social Trends on the Islands During the Last Century

Economic and Technological Trends

It is beyond the scope of this study to give all the evidence upon which the following trends are based. However, the summary on the following page indicates the chronological sequence of events and the results and reactions to some of the major changes on the islands.

There are a number of important technological changes which I do not fit into the chronological summary but which should be included. These are:

1. Changes resulting from government regulation of the fishing industry; for example, the closing or reorganization of factories resulting from the government conservation policy of prohibiting the catching of small lobsters.

2. The increased use of trucks and automobiles which was closely related to the improvement of roads.

3. The growth in the number of large-scale centrally-located merchants who use as local salesmen the mail-order catalogue and trucks converted into travelling stores.

4. The increased use of fish by-products.

5. The combination of the hospital in Bristol and car transportation which have led to the increased use of specialized medical facilities on the mainland, and a growing anxiety about the lack of these facilities on the islands.

6. The introduction of small cold-storage plants in Afton and Fairhaven.

There has been a shift from a subsistence to an import-export type of economy, with a resulting decrease in the use of local resources (with the exception of fish) and an increase in the use of imported finished goods bought for cash. Also during this century the increase in what islanders feel are their material needs has been far greater than their ability to make and earn sufficient to cover these needs. These changes have made the islands more dependent on the economy of North America and more vulnerable to suffering and hardship in the event of another depression.

Changes in the location of markets, in modes of transportation, and in the type of fish products demanded have made the geographical location of the islands more of a liability than an asset. In the days when the principal markets were in Central America and the United States, when the fish product was dried and salted, and when transportation consisted of locally-built and manned schooners, the islands occupied one of the most favorable positions in Eastern Canada. Specialization of marketing by large-scale Canadian exporters with agents and contacts in Central America, and the use of large steam cargo vessels, forced the island fish dealers to send their fish to major seaports for export. The imposition of higher tariffs on fish by the United States, the growth of Canadian and United States fresh fish markets, the centralization of large fish-processing plants, and the use of fast land transportation all resulted in increasing quantities of island fish being transported by truck across on the ferry to large mainland fish-distribution centers. The time factor is of great importance with fresh fish, and delays caused by bad weather and the resultant stoppage of ferry service puts the islands at a disadvantage to the mainland fishing communities. Consequently marketing of fish has become a specialist job held by the fish plant owners and managers; in the case of the Coop it is held by the parent organization. The growth of the fresh fish market and decline of the salt fish market has decreased the amount of fish processing required on the islands.

There has been increased mechanization and capital investment in gear per fisherman, as evidenced in the introduction

of engines and power line haulers. This has cut down the time needed for the boats to get to and from the fishing grounds and to carry out the fishing operation. But the fixed costs have thereby been increased. An important consequence has been the technological displacement of manpower, which has been compensated for by emigration and having smaller families. A number of changes have also occurred in the investment, savings, and income patterns. An increasing amount of outside capital has been invested in the islands, but a decreasing proportion of the profits made by local men has been reinvested on the islands. The tightening of United States immigration laws has stopped a former widespread practice among fishermen of obtaining seasonal work in the States and returning with most of the income earned. More money is leaving the islands in the form of taxes and there has been an increasing dependence on government payments such as social security benefits, public works, and services. This has had important consequences for local leadership.

During the past 40 years there has been a boom-and-bust type of business cycle on the islands, corresponding closely to larger world economic trends. The booms coincided with the two world wars. Moreover, there are considerable yearly fluctuations in the quantity of fish caught, with some evidence that these follow a cyclical pattern. This cycle naturally can mitigate or intensify a business depression. There are a number of fishermen today in their fifties and sixties who have

Technological Change

Summary of Some of the Main Technological Changes on the Islands

Date	*Form of Change*
Prior to 1845	Trading outside the islands done with visiting sailing packets. Barter principally used.
ca. 1845	First store in Fairhaven.
Early 19 cent.	Shipbuilding slowly developed. Large increase with development of U.S. and West Indies trade.
Mid. 19 cent.	Coasting trade with U.S. developed.
1860-75	Direct trade to W. Indies waxed and waned. (Dried fish). Increased volume of fishing schooners.
1880's	Lobster fisheries begin to be developed for commercial purposes.
1884	Telegraph service to Afton installed.
1880's	First canning factory in operation on the islands. (Nereton)
1890's	Fresh-haddock trade begins from islands to mainland Canadian port. Carried by sailing vessels.
1905	First gasoline engines installed in fishing boats.
1910 - 1917	Last fishing vessel stopped operating from islands. (Small sailing fishing boats stopped operation before the vessels did). Vessels continued to be used for freighting fish.
1918	Fish canning factory opens at Fairhaven. Two automobiles on the islands.
1919	Last sailing vessel built on the islands.
1923	Fishing vessels revived after World War I but only operated until 1923.
ca. 1925	Hand soldering of cans in fish factories was superseded by automatic sealers.
1926	At this time fresh fish was being carried by boat from the islands to the largest fish company at Bristol.
1928	Hydroelectric power lines installed.

Results and Reaction to the Change Reported by Respondents

Gasoline Engine

Greatly reduced the time and labor involved in getting to and from the fishing grounds.

Increased the season's catch of two fishermen approximately fourfold (between 1900 and 1950).

Increased the fishermen's capital, running, and maintenance expenses. Enabled men with less physical strength to become fishermen.

Gas engine first used only as an auxiliary source of power. Boats with engines used to tow sailing boats in absence of wind or with adverse wind and currents.

It took some time before fishermen developed skill in operating, maintaining, and repairing engines.

The first men who adopted engines markedly increased their catches (especially drailers).

Engines made the return of the fishermen less uncertain and allowed more time for fishing and for leisure.

Early Sentiments Towards Engines

The noise of the engines would scare away the fish.

Engines were all right in good weather, but no use in bad weather.

Recent Sentiments

The engine saved the fishing. Men would not have stood much longer for the long hours and back-breaking work of fishing without engines.

The engine has spoiled the fishermen. Now they don't seem to have any sense of obligation.

Introduction

Engine was seen and bought by a fisherman on a visit to the states.

Automatic sealer did the work of seven hand solderers.

One of the basic necessities, for a large number of modern household appliances known to exist in the cities through the media of advertising, visiting and movies.

fished during both world wars and who on both occasions have made large profits. Some of these profits were spent, but there are a few families with savings of $10,000 and more which have been placed largely in war bonds and savings certificates, for the owners are very reluctant to invest in any project that contains a measure of risk.

Profits during the World War II period permitted a very rapid rise in the standard of living, and this period lasted long enough for the high standards of living to become well established. Additional consequences of the wartime prosperity were these:

1. There was increased concentration on fishing as a livelihood and an accelerated trend away from traditional activities such as growing vegetables, keeping a cow, and cutting firewood. The traditional activities were a safeguard against economic depression in the larger economy.

2. Many parents, fearing another depression, provided their children with education and training for occupations other than fishing. This meant that their children would probably leave the islands for good.

3. Although buyers and fishermen prospered, workers in the fish plants, who individually have little or no bargaining power and who are not unionized, have had a relatively small increase in income since 1939. The wages and conditions in the fish factories probably reinforce the fisherman's dislike of becoming a wage earner.

Technological Change

Summary of Some of the Main Technological Changes on the Islands

Date	*Form of Change*	Results and Reaction to the Change Reported by Respondents
1930	Automobile engines installed in boats.	Automobile engines gave boats more speed, reduced travelling time, and allowed owners to reach the fishing grounds first, to run trawl undisturbed, pick a place to fish. Engines cheap second-hand.
1930 - 35	One-day public transport service began between Bristol and the islands.	
1939 - 40	Trucking fresh fish from the islands begins to displace carrying the fish by boat.	Trucks returning to islands sought return freights and encouraged import of goods to islands. Increasingly good land transportation an impetus to fresh-fish trade. Trucks cheaper to operate and faster than boats. Required roads on peninsula and islands to be of passable condition. Greatly increased ferry traffic to and from mainland.
1942	Power hauler installed on line trawling boats. Used many years earlier for hauling lobster traps.	One previous unsuccessful attempt at installation. Installation made because one of fishing partners damaged a shoulder. First users laughed at by fishermen. When found that device saved about one hour in hauling trawl and cut out heavy physical work, power hauler within one year was installed in most Nereton boats.
1944	Last boat carrying fresh fish to largest fish company in Bristol stops running.	
1944 - 5	First artificial fish dryers installed.	Previous to dryers, fish were sun-dried and sent to large mainland port where final drying was performed. Introduction of artificial driers increased local profits as drying process completed on islands. Driers seen in *Fisherman's Magazine* which had been developed by Department of Fisheries research engineer. He supervised installation on the islands.
ca. 1940 on	Rapid increase in use of the following home appliances: electric washing machines, oil-burning stoves for cooking and heating, and radios. Some refrigerators and vacuum cleaners. Rapid increase in number of private cars.	
Post World War II	Radio and telephones introduced and operated by men who received necessary training in the armed services.	
At present in construction	A large new road on the peninsula.	

able to raise $9,000 for the initial capital of the venture which started at the peak of the last boom in fishing. It would almost certainly be impossible for them to raise $30,000 now even if they so desired. If they were able to obtain a loan from some source many of the difficulties the seine fishermen met would still be present. In addition there would be the problem of crew selection, and the distribution among all the membership of the profits obtained by the work of a few men on the dragger. The Coop does not have the processing facilities for the type of fish caught by the draggers and, geographically, Afton is the least convenient of the islands for the trucking of fresh fish to the mainland.

3. In the past there have been many cases of fish buyers who financed fishing boats and gear of the type now in use. They have also financed a few scallop draggers, and one of the outside-owned companies fitted out a swordfish boat. These larger boats are based at large fishing ports on the mainland, none of the crews are local men, and the catches from the draggers are landed at large fish-processing ports.

If a dragger were to be financed by fish buyers, there are certain technical and commercial factors that would govern the policy of its operations.

a. The most skilled crew available would be selected in order to utilize best and to protect the large investment. Local men could be trained for the work but experienced men from outside the islands would be chosen for the most responsible positions.

b. To make a profit, the dragger would have to fish throughout the year. If the dragger fished for high-price fish, it would operate locally for only four months of the year. During the remainder of the year it would be absent following the fish migrations.

c. It would not be economical to return to the islands after each trip, so the dragger would put in to the nearest port with facilities for fish processing. For instance, catches of redfish would probably be landed in or close to the United States.

d. So far draggers have been profitably operated almost entirely to catch high-price fish. However, an experimental dragger is being built in Canada to fish for hake, a low-price fish used on the islands for canning. If the experimental hake dragger proves successful, this type might be adopted on the islands, and thus lead to a large expansion of the present island canning factories. Fairhaven appears to be the best location for this expansion, for it has two outside-owned fish canneries with capital resources. It has the best harbor, which although now silted up could be made usable by removing the present breakwaters at the mouth of the bay and allowing the tidal currents to remove the silt. Since they are not highly perishable the canned goods can be transported from the island by ship. It should be pointed out that these developments might result in a one-company town.

Changes the Dragger Would Bring to the Present Fishing Industry

1. The draggers would require crews of six to 10 men instead of the present general island practice of two men to a boat.

2. New skills would be acquired in handling mechanized equipment and in coastal navigation.

3. The crews would have to live for long periods aboard the draggers away from the home port, and stay at sea for periods of up to a week.

4. All fish except redfish would be dressed and iced-down at sea instead of at the island fish-processing plants as is the present practice. Because dressing the fish is now one of the major tasks in the fish plants, to add this job to the dragger fishermen's duties would cause considerable unemployment among the workers in the island fish plants. This unemployment situation would be accentuated when the draggers landed their catches at ports away from the islands.

5. The dragger would enable a smaller number of men to obtain a far larger catch than do present techniques. On the other hand, larger catches per man would be essential to repay the increased capital investment per fisherman. If, as seems quite possible, the number of draggers increased too rapidly and they did not land the fish at the islands, the resulting unemployment might lead to depopulation of the islands. If, however, steps were taken for the local readoption of plants and for gradual reinvestment in draggers instead of inshore type fishing boats, the changeover might not be so disruptive.

The Introduction of the Dragger Considered in Relation to Previous Technological Changes

Some of the conditions that facilitated previous technological changes may be difficult to achieve, for example:

1. Immediate gains in profits were obtained by the introducer of the change. In the case of the dragger the people on the islands associated its first introduction (by outsiders) with losses, whereas there was no way of seeing what gains there may have been for the dragger fishermen after they left the local grounds.

2. Technological changes have usually been introduced by leaders in the community. The dragger may be introduced by a large outside company which would be likely to lead to a considerably hostile rather than a friendly reception.

3. The use of draggers would cause radical change in the islanders' social life which at present fits round the complex daily and annual fishing cycle. With the completion of the new mainland road, the axis of social activities may well shift from the islands to the nearest mainland town. Social activities here would require less active participation; for example, a meal in a restaurant followed by a movie, instead of a home-cooked supper followed by a quilting party.

4. Expansion of local fish factories would present special problems. Workers in the island fish plants now have low social economic status. Also, the fishermen experience great difficulty in adjusting to a factory routine. These factors will lead to difficulties if the canning factories are expanded and a large number of fishermen become unemployed. Unionization of the workers would be likely.

5. There appears to be a relationship between previous technological changes on the islands and the business cycle. The introduction of change has been most successful in times of prosperity when the change is a minimum threat to others' subsistence. The dragger was introduced at a time when a business decline was expected.

VI. Conclusion

Recommendations

It would seem that the optimum type of dragger for fishing on the local grounds would have to be modified to suit the complex of other factors that have been discussed. This modification may well take the form of a boat of less than 70 feet in length, operating on a more flexible annual cycle and using a number of additional techniques that exploit the different types of fish as they come to the locality. Boats such as these are being successfully operated on several eastern Canadian fishing grounds.

In this study I have focused attention on the dragger. In order to place this focus in a more over-all perspective, I want to suggest some forms of subsistence that could supplement dragger fishing or the present form of fishing. The working out of any of these ideas, which has already started on the islands, would require specialized knowledge and experimentation with the full support and consultation of the people on the islands.

1. If the new road is completed there should be an increase in the number of tourists to the islands. At present there are very limited facilities for tourists and considerable investment would be necessary to provide accommodations of an order to attract them.

2. There are a large number of tuna close to the islands and tuna fishing could be developed into a tourist sport. Some of the present forms of fishing would also be suitable for sport.

3. Tuna fishing might also be developed on a commercial basis and one of the existing fish plants used for canning the tuna.

4. If the fresh-fish market continues to expand, processing and transportation facilities should be extended and a cold storage plant established.

5. Part of the fish caught could be used as feed in raising animals on the islands.

6. Home industries making goods for the tourist trade could be expanded. A small group is now engaged in this trade and could sell more than it is able to make.

Some Reasons for the Local Fishermen's Hostility Toward the Dragger

A number of reasons for the islanders' hostility toward the dragger have been suggested. Here I shall restate and summarize these reasons in more general terms.

1. On the islands the very little information available concerning the dragger is fragmentary and sometimes inaccurate. On the other hand the islanders have no satisfactory source of information off the islands which can answer the types of questions they would like to ask, and there are some questions which at present cannot be answered. This lack of information is a source of anxiety to the fishermen.

2. Much of the anxiety engendered by the factors of falling fish prices, falling catches, and increasing gear costs have been transferred to the draggers, which are a more concrete and immediate object on which to focus hostility.

3. There are few alternatives to fishing as a means of subsistence; the islanders believe there are none. It is thought that the dragger is depleting the locally available fish and therefore is perceived as a major threat to the islanders' subsistence.

4. The introduction of the dragger would lead to a severe disruption of the present social, economic, and technological equilibrium.

5. The islanders fear that the introduction of the dragger would lead to unemployment and that the equipment now in use on the islands would be rendered obsolete.

7. The islanders fear that profits from the dragger would increase the wealth of the already rich and the poverty of the already poor.

Some General Statements Concerning the Technological Changes Investigated on the Islands

1. The islands show considerable variation in the speed with which they will adopt a particular technological change. Technology related to domestic affairs is accepted more quickly than technology related to the fishing industry. The more the particular technological change disturbs the existing patterns of social and economic organization, the greater is the resistance to the change.

2. Changes in the economy external to the islands are producing pressures to change the system of production on the islands.

3. One of the crucial factors in bringing about the predicted chain of changes is that the adoption of the dragger would end the present practice of the fishermen owning their own tools of production. This change in possession of the tools of production from the individual to the company or corporation is considered by the Webbs[1] as being a crucial point in the industrial revolution and one of the main factors responsible for the birth of trade unions.

4. In the past when change was introduced to the islands the skills of the local technicians could modify the newly introduced technology to best fit local needs. With the narrowing of the range of technical skills available on the islands and the increasing complexity of the new technological changes introduced to the islands, adaption of new technology to fit local needs has become increasingly difficult.

1. Webb, Sydney and Beatrice, *The History of Trade Unionism*, pp. 24-25.

Technology, Credit, and Culture in an Indian Village

David G. Mandelbaum

Formerly a tribal people, the Kota of the Nilgiri Hills are now subject to the same forces which affect villagers in South India generally. The seven Kota villages are interspersed among those of the other ancient inhabitants of the Nilgiris.

Kota economy was aboriginally geared to a caste-like division of labor with three other tribes. In return for the iron tools, wooden utensils, pots, and music which they provided, the Kota received traditionally fixed contributions. From the Toda, the Kota obtained buffalo carcasses and some dairy products; from the Kurumba they procured magical protection and some forest produce; and from the agricultural Badaga, the most numerous people, they received grain.

A Kota family would grow some of its own foodstuff, but depended considerably on the grain income from the Badaga for its annual food supply. Each Kota family had a number of Badaga families whom it alone supplied with Kota products and services and from whom only that Kota family received tithes of grain. If a Kota family felt that one of its associated Badaga families was not fulfilling the expected reciprocal obligations, it would withdraw from the cooperative arrangement. No other Kotas would then enter into a reciprocal alliance with that Badaga family, and in serious cases they would break off relations with the entire Badaga village. Under earlier conditions, the sanction of non-cooperation was a most effective one, because without Kota help a Badaga would find it difficult or impossible to get tools with which to cultivate his fields, pots in which to cook his food, and the music imperative for his major ceremonies. Such interdependent relationships have long been characteristic in village India as well as among these tribes.

The successful operation of this sanction and of the whole system of intertribal relations pivoted on the Kota economic monopolies and on the internal cohesion of the tribe. In recent decades the monopolies have ceased to exist and patterns of internal cohesion have become lax. For over a century past, English officials, European missionaries, and migrants from the neighboring plains—both Hindu and Muslim—have come into the Nilgiri plateau. For many years the advent of these newcomers had remarkably little effect on the relations among the Nilgiri tribes. Then, in the last 25 years, changes have come with a rush.

Badagas began to buy tools and utensils in the bazaars of the Nilgiri towns and stopped using Kota music at ceremonies. With their income from the Badagas thus curtailed the Kotas had to increase their agricultural efforts. Like the other cultivators of the Nilgiri area, they concentrated on growing potatoes as a cash crop. But although the Kota eat potatoes occasionally in curries, they do not consider them to be a real food and, hence, they must buy food grains with the cash derived from the potato crop.

Once a Kota begins to raise potatoes on his land he cannot readily go back to subsistence cultivation. Potato cultivation is done with the spading fork rather than with the traditional plow. Partly because draught animals are no longer necessary for agricultural technology and partly because the expansion of acreage under cultivation has reduced the pasture land available, the number of cattle has decreased. This has sharply curtailed the supply of organic fertilizers which are necessary for a good crop yield of grain. Moreover potato cultivation demands the use of artificial fertilizers that must be paid for in cash, which the Kota can only get through potato cultivation.

For most Kota cultivators, credit is essential for their economic operations. Some Kota have utilized the Government-sponsored cooperative credit association. But as not uncommonly happens elsewhere in India, the Kota villager has generally found the bureaucratic organization of these credit cooperatives too rigid, so he has not used this service regularly despite the lower rates of interest charged.

Not only is the Kota villager dependent on the supply and price of fertilizers; he is also dependent on the supply and price of food grains in the local ration shop. The food rationing system operates even in the smallest Kota hamlet, and the villager must take the kind of grain allotted to his ration shop. In the past few years of mounting inflation, however, his money has been able to buy less food than before.

The rush of recent change has also weakened the internal cohesion of the village. Formerly, a villager who transgressed the traditional patterns would be subjected by the other villagers to the sanction of non-cooperation. This sanction was a serious penalty in intratribal as well as intertribal affairs because an individual could not make a living alone even if he were able to withstand the psychological hardship of social isolation. Most economic operations require the work of a team of villagers; a man who cannot work as part of a team has little chance of earning a livelihood. Now, however, a man can stand alone economically because there are many lowlanders available for hire as laborers. The number of those in the Kota village of Kolmel who have broken with some of the old traditions and have ignored the displeasure of the conservative villagers has grown to such an extent that the village is now divided into two factions. The members of one faction do not interdine or cooperate or worship with the members of the other faction. The old unity of the village as against other groups is no longer manifest.

In place of the old economic dependence on the supply of Badaga grain, the Kota villager is now dependent on the supply of fertilizer available from the factory, on the purchasing power of his money, on the vagaries of supply in the ration shop. The great difference lies not in the fact of economic dependence but in the fact that formerly the Kota had some control over the peoples on whom they were dependent. They have no control over the peoples and forces on whom they are presently dependent. This frustration has made for greater hostilities between Kota and Badaga as well as between conservative and reform factions within the village. Some hostility is also directed toward the government. Similar situations prevail widely in Indian villages.

Dr. Mandelbaum is with the Department of Anthropology, University of California, at Berkeley.

How to Recognize an Indian Health Problem

*H. De Lien and J. Nixon Hadley**

That there is no necessary relationship between race, culture and language is well demonstrated in the American Indian citizen of these United States of America. The Indian may be so by descent, by culture, or by language, with no causal relation between, and any or all may be mixed with non-Indian elements. For these and other reasons, it is not easy to categorize the Indian. Of whom are we speaking when morbidity, birth and death rates are reported for the American Indians?

There are over 200 tribes speaking 200 or more languages living under diverse conditions of geography, climate, culture, linguistics, acculturation, economic level and integration within the general population of the United States. All are categorized as Indian. Over and above the original terminological error of Christopher Columbus—that he had arrived at the Indies by traveling west and that the inhabitants of the new land were Indians—is the confusion as to what precisely is meant by this erroneously named "Indian." To add confusion and to confound the searcher after facts regarding the "Indian," there is the biological Indian discovered by Columbus and later by the anthropologists, the cultural or ethnic Indian by the anthropologists and ethnologists, the political Indian by the politicians, the legal Indian by Congress, legislatures and by the courts, the eligible Indian by the bureaucrats and the health problem Indian by all of the above, plus "authorities" among the medical and allied professions.

When the "Indian," genetically speaking, has less than 4/4 quantum of Indian blood, he is no longer strictly Indian but an individual with an admixture of races, anyone of which may characterize the individual. His physical traits may have "Indian" or mongoloid attributes, or caucasoid, negroid, or any conceivable combination of these racial stocks and, depending on the degree of dominance, he may be classified as predominantly any one of these.

The cultural or ethnic "Indian" who "lives" like an Indian among the 200 plus tribes can be of caucasoid, negroid or mongoloid racial derivation or a combination. In American history, there are recorded a number of cases such as Mary Jemison who as a child was captured by the Senecas, and as an adult refused to leave the people with whom she was culturally identified. Others such as Cynthia Ann Parker among the Comanches later rejoined their biological kin but left descendants in the tribes. There were also such men as James Beckwourth who voluntarily joined the Crow tribe. Even more recently, caucasoids are known who enrolled as Indians in some tribes prior to the closing of the rolls, recognizing certain advantages to such membership in the disposition or control of natural resources. It follows, therefore, that an enumeration by degree of blood will not cover the cultural Indian.

Through education, the political Indian knows that his vote used as an Indian bloc is a potent political weapon. Proper or improper exercise of this franchise can control some of the politicians as well as affect other fields such as health, welfare and eligibility for additional services at the expense of the Federal Government. In the political field, a professional Indian has developed who resembles the professional Italian or Scandinavian or whatever bloc has a vote worth cultivating. It is quite possible that some of these professional Indians are included as Indians only in their own stump speeches.

The legal status of the Indian is ambiguous: for example, at one period in the history of the United States, Negroes were made "Indian" by law in certain tribes which fought with the South in the Civil War. Also several hundred suits are pending before the Indian Claims Commission in which Indian tribes are seeking to recover large sums from the United States Government. A number of hitherto undeclared and unenumerated "Indians" will seek to return or to acquire tribal membership because of possible recoveries. The legal status is the more complicated because there has never been an overall legal definition of an "Indian."

This leads to the problem of the identified, eligible Indian who, because of administrative and management needs, must conform to laws, regulations and orders governing services available or not available to him. Under certain conditions the Indian may be eligible for medical and hospital care, such as those acquired because of residence on an Indian reservation, enrollment in a tribe recognized by the Federal Government, attendance at a Federally-operated school. Conversely if certain other conditions obtain he is not eligible.

* Dr. De Lien is with the Special Technical and Economic Mission, ECA, and Mr. Hadley is Chief Statistician, Branch of Health, Bureau of Indian Affairs.

Furthermore, the same individual may be eligible for certain services but not for others.

The health problem Indian is rapidly becoming identifiable through the medium of scientific and other literature characterized by all types of statements with or without attached statistical data. Obviously, one cannot consolidate unrelated data derived from several of the categories identified above. Variations in the boundaries of the groups covered would render such a method useless for accurate analysis, interpretation, measuring trends, and for health programming. The term "Indian" as commonly used is so broad that for public health purposes and methods as well as in comparable disciplines, generally, it has little value.

It is the health problem Indian with which this paper is concerned in the general discussion, comments, suggestions and recommendations to follow. The health problem Indian will be used in this paper to illustrate some of the difficulties existing in obtaining reliable basic data and applying methods of analysis and interpretation so as to demonstrate what is needed to make the material valid. Accurate data relating to morbidity, birth and mortality rates are generally not available at the health unit, the agency, the state or federal levels. The following letter illustrates the confusion existing at a state and agency level:

"In reply to your request for sound material on the morbidity and mortality rates agency by agency, I regret to state that there is no sound material available.

"There are two main reasons for the lack of sound, vital statistics:

"1. Confused idea as to the number of Indians in the state.

"2. Necessary vital statistics are not reported to this office or any central office within the agencies.

"1. Census of Indians in the state. The 1940 Census gives the number of Indians in the state as less than 75,000. The Office of Indian Affairs has estimated the number as over 100,000.

"The 1930 Census gives the number as nearly 100,000. According to the Bureau of Census figures, there had occurred a decrease of approximately 30 percent between 1930 and 1940.

"According to the estimate of the Office of Indian Affairs, there had occurred an increase of approximately 20 percent during the same period.

"The State Department of Health likewise is having difficulty in determining morbidity and mortality rates among the Indians. The Chief of the Division of Vital Statistics recently inquired of me if we had available more accurate data relative to the Indian population. The following will illustrate their difficulty:

Birth rates:

For the state as a whole	23
For Indians:	
employing 1940 Census figures	27.3
employing OIA estimate	15.7

"They feel definitely that the birth rate among the Indians is higher than that for the state as a whole. They are therefore employing the figures of the 1940 Census in determining the various rates among the Indians.

"I inquired of the Superintendent of the Agency if he had information relative to the distribution of the Indians within the countries. His reply was that no such information was available.

"As with the total Indian population, there are no data available as to the number of Indians eligible for care under the health activities of the Indian Service. One-quarter bloods are eligible within one agency and one-half bloods within another agency."

Data on health and population related to the health problem Indian are remarkable for their paucity. However, this does not mean that the best in statistical methods should not be applied to such data that are available and that continuing efforts should not be made to improve the recording and accumulation of basic and sound health material related to the Indian. Prior to 1948, a statistical division existed within the Bureau of Indian Affairs which was inadequately staffed. Nevertheless, it attempted to bring some order out of the morass of statistical half-truths with which the Bureau found itself confronted. Progress was made with the development of a Hospital Records Manual and a number of forms for reporting morbidity and mortality data. Hospital in-patient cards were completed for each patient and forwarded to the Central Office for punching, tabulating and analysis. The information obtained therefrom was to be made available to the field stations at regular intervals and recapitulated annually. These data and certain other information were placed on the punch or tabulating cards which are now on file but have not been processed and analyzed. In the meantime, the hospital record manual is outmoded and the codes used to identify the disease or condition for which hospital admission was necessary are obsolete.

Beginning in 1950, a vital records program was authorized which it is hoped will be continued until data already available are properly classified, consolidated and analyzed. Once this task is completed, it will be possible to provide data of some significance and foundation for use generally and for special health purposes related to the health problem Indian. Until such information is available, statements regarding the health problem Indian from whatever source should be subjected to the closest scientific scrutiny.

To demonstrate the necessity for careful evaluation, the following survey is cited: In 1945, 600 students at one of the Indian schools had blood samples withdrawn to be subjected to the Klein and Kahn tests. Proper controls were not established and 171 individuals were reported as having positive blood findings indicating existence of syphilis. The local papers immediately headlined the high venereal disease rate and paraded their moral indignation that such conditions existed. Subsequent re-examinations with the blood being tested at two state laboratories reduced the number of positive findings to 22. The facts were not properly determined before the public was advised incorrectly that a serious health

condition existed at the school. This poorly conducted survey created suspicion and distrust and was a definite disservice to the "Indian."

It is advisable to be ultra cautious in accepting pronouncements of self-styled authorities, or doctors who become specialists in such matters by self-acclamation to serve their own special interests: for example, one medical "authority" on Indians repeatedly stated that Indians did not have cancer despite the presence in an Indian Service hospital in his community of a number of definitely diagnosed cancer cases. The death rate from cancer reported for 1948 Indians was 55.3 per 100,000.[1] This rate is considerably lower than that of the non-Indian citizens but there are many factors which may be responsible, such as an estimated average age of death of Indians of 25 years, incomplete reporting and inadequate knowledge of the total number of Indians needed to make proper rate calculations. Statements that Indians do not have diabetes, goiter, heart disease, suffer from pain, or do not have insanity are without scientific foundation. As properly controlled studies are beginning to demonstrate, the health problem Indian is subject to the ills and difficulties related to socio-economic conditions, diet and contact with disease closely paralleling that of the non-Indian subject to comparable environment and habits of living.

At present, very little material is readily available to the student desiring statistical data on health and population among Indians in the United States. The National Office of Vital Statistics[2] publishes annually the total number of Indian births and deaths by state of residence, and crude birth and death rates for Indians for the United States only,[3] the rates being based on estimates of population furnished by the Bureau of the Census. The Bureau of the Census does not attempt to make estimates of Indian population by states nor, since the cessation of publication of the "Statistical Supplement" to the Annual Report of the Commissioner of Indian Affairs" in 1945, are such data readily available from the Bureau of Indian Affairs.[4]

Causes of specific mortality rates for Indians for the years 1940 and 1945 were also published by NOVS in the "Mortality Summaries for the United States, 1941-1945."[5] It is probable that this report will not be repeated for at least one more year. NOVS does publish deaths from selected causes without rates each year.[6] But no detailed analysis of natality statistics for Indians has been published by NOVS, and the BIA does not publish any regularly recurrent statistics on mortality, natality or morbidity.

1. Vital Statistics of the United States, 1948, NOVS, Public Health Service, FSA (Indian rate not published).

2. Referred to hereafter as NOVS.

3. "Deaths by Urban and Rural Areas and by Race: United States, Each Division and State, 1948," and "Births by Urban and Rural Areas and by Race: U.S., Each Division and State, 1948," *Vital Statistics—Special Reports*, Vol. 35, Nos. 2 and 5, National Office of Vital Statistics, Public Health Service, FSA.

4. Referred to hereafter as BIA.

5. *Vital Statistics—Special Reports*, Vol. 27, Nos. 14-51, NOVS, Public Health Service, FSA.

6. "United States, Summary of Vital Statistics, 1948," *Vital Statistics —Special Reports*, Vol. 34, No. 50, NOVS, Public Health Service, FSA.

Use of Substitute Sources

Under these circumstances, the student of Indian health conditions is obliged either to request the preparation of special tabulation by NOVS which involves delay and extra cost, or attempt to draw his material from other sources. Fortunately, the Indian population of the United States is so distributed that certain states containing a large proportion of the total Indian population of the United States have non-white populations which are almost exclusively Indian.

An examination of 1940 population data[7] shows six states containing 43.3 percent of the total Indian population of the United States to have the following distribution of their non-white population:

TABLE I

State	*Total Non-white Population*	*Total Indian Population*	*Percent Indian*
Arizona	72,469	55,076	76.0
Montana	18,988	16,841	88.7
Nevada	6,217	4,747	76.4
New Mexico	39,506	34,510	87.4
North Dakota	10,471	10,114	96.6
South Dakota	23,886	23,347	97.7
TOTAL	171,537	144,635	84.3

Similar data for the 1950 census are not yet available. However, it is anticipated that, with the possible exception of Arizona, proportions will be approximately the same in 1950 as in 1940. Under these circumstances, non-white data for these six states should approximate Indian data.

Where data are available on a three-way race breakdown, a closer approximation is possible. In 10 states, the non-white races exclusive of the Negro (referred to varyingly as "Other Races" or "Minor Races" in various tabulations of Census or NOVS) are almost exclusively Indian. Their population in 1940[8] was:

TABLE II

State	*Total Minor Races Population*	*Total Indian Population*	*Percent Indian*
Arizona	57,476	55,076	95.8
Minnesota	13,390	12,528	93.6
Montana	17,868	16,841	94.3
Nevada	5,553	4,747	85.5
New Mexico	34,834	34,510	99.1
North Carolina	22,690	22,546	99.4
North Dakota	10,270	10,114	98.5
Oklahoma	63,357	63,125	99.6
South Dakota	23,412	23,347	99.7
Wisconsin	12,677	12,265	96.8
TOTAL	261,527	255,099	97.5

The Indian population of these 10 states represent 76.4 percent of the total Indian population of the United States.

7. "Characteristics of the Non-white Population by Race," *Sixteenth Census of the United States:* 1940, Bureau of the Census, Department of Commerce.

8. *Ibid.*

With three-fourths of the Indian population included, and with a "Minor Races" tabulation almost exclusively Indian, a tabulation of data for minor races for these states should closely approximate an Indian figure.

Even closer approximations can be drawn. The Indian is predominantly a rural resident. In 1940, over 90 percent of the Indians were residents of rural areas where the other minor races are predominantly urban. There are 16 states[9] where the rural population falling in the "other" categories is 97.8 percent Indian, and the rural Indian population is 79.1 percent of the total Indian population, urban and rural, of the United States. Even with the use of data for rural non-whites, there are 11 states[10] where the rural non-white population is 91.7 percent Indian, and the total rural Indian population represents slightly more than half (51.9) of the total Indian population of the United States.

The principal omission on each of these listings is the Pacific Coast States where the Oriental population is sufficiently large even in rural areas for the "Other Races" group to be approximately half Indian and half Oriental. If there is any reason to expect regional variations in the Indian data, allowance should be made for the omission of the Pacific Coast area. This may be accomplished in part by use of data for selected counties in these states whose non-white populations are predominantly Indian.

One of the authors recently had occasion to employ a somewhat more elaborate version of this suggested technique in connection with a study prepared for the Public Health Service.[11] Because of misinformation as to availability of tabulations of the 1940 Birth Registration Test by specified minor races, a tabulation was set up for all rural non-whites in selected states, or selected counties within states, where they were at least 75 percent Indian. Specific Indian tabulations later became available and replaced the estimated figures in the published study. However, as an example of method, the comparison between the two figures, one derived from a specific count of Indian data and the other from previously published data for rural non-whites, is worth reproducing:

For 15 states, there is fairly close agreement between the two figures. California, Colorado, Iowa, Maine, North Carolina, Oklahoma, Utah and Washington show greater discrepancies. In California, Indians comprise the major portion of the non-white population in most of the mountain counties, although apparently this is not representative of the total Indian population of the State. In Colorado, Iowa, Maine and Utah, the Indian population is small, and the change of only a few cases can greatly affect percentage figures. In North Carolina, Oklahoma and Washington, the situation is similar to that in California.

9. Arizona, Idaho, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Oklahoma, South Dakota, Wisconsin and Wyoming.

10. Arizona, Idaho, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Wisconsin and Wyoming.

11. "Registration of Vital Events Among Indians," by J. Nixon Hadley, *Vital Statistics—Special Reports*, Vol. 33, No. 6, NOVS, Public Health Service, FSA.

TABLE III

Area[12]	*Percent of Indian Infant Cards Matched to Transcripts*	*Percent of Rural Non-White Cards Matched to Transcripts*
United States	68.3	62.6[13]
Arizona	40.2	41.8
California	85.5	72.9[14]
Colorado	88.9	80.0[15]
Idaho	82.6	81.5[16]
Iowa	57.1	50.0[17]
Kansas	100.0	100.0[18]
Maine	77.4	50.0[19]
Michigan	90.2	86.1[20]
Minnesota	95.7	96.1
Montana	90.7	91.8
Nebraska	84.2	82.5
Nevada	80.9	82.2
New Mexico	39.9	34.8
New York	91.9	88.2[21]
North Carolina	75.1	84.6[22]
North Dakota	95.0	95.1
Oklahoma	72.7	63.3[23]
Oregon	77.8	72.4[24]
South Dakota	80.6	79.7[25]
Utah	52.5	43.8
Washington	79.8	72.2[26]
Wisconsin	91.9	89.2
Wyoming	83.8	84.2[27]

Smallness of Sample

Discussion of the reasons for variation in Indian figures for specific states as mentioned above brings up one point which is a constant embarrassment in working with the Indian data. The Indian population is small, much less than half a million total for the United States. The number of Indian births each year is only about 10,000 and the number of deaths about half of that figure. Any analysis including further subdivision of these figures, whether geographically, by age, sex, or by death, results inevitably in the use of very small frequencies where chance variation may make a marked dif-

12. Includes only states where the non-white population of the state or of selected counties within the state is 75 percent or more Indian.
13. Total, selected Indian areas specified in the table.
14. Alpine, Amades, Calvaveras, Del Norte, El Dorado, Humboldt, Ingo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Shasta, Trinity, and Tuolumne Counties.
15. La Plata and Montezuma Counties.
16. Bannock, Benewah, Bingham, Bonday, Clearwater, Idaho, Kootenai, Lemhi, Lewis, Nez Perce, Owyhee, Ponn, and Shoshoni Counties.
17. Tama County.
18. Jackson County.
19. Aroostook, Hancock, Somerset and Washington Counties.
20. Alcona, Antrim, Arenac, Baraga, Charlevoix, Chaloggan, Chippewa, Crawford, Delta, Emmet, Gogelic, Grand Traverse, Iosco, Isabella, Kalkasha, Lellanan, Luce, Machinac, Menominee, Missaukee, Oceana, Otsega and Schoolcraft Counties.
21. Franklin and St. Lawrence Counties.
22. Graham and Swan Countries.
23. Adair, Cherokee, Delaware, Dewey, Haskell, Mayes, Ottawa, Roger Mills and Woodward Counties.
24. Amy, Douglas, Harvey, Jefferson, Josephine, Klamath, Lincoln, Tillamock, Um atilla and Wasco Counties.
25. Duchesna, Juab, Piute, San Juan, Uintah and Washington Counties.
26. Clallam, Ferry, Grays Harbor Island, Mason, Okanagon, Pend Oreille, San Juan, Skagit, Wahkiatum and Whatcon Counties.
27. Fremont County.

ference in calculation of rates or ratios. To a certain extent, and at the loss of the ability to measure time trends accurately, the use of data consolidated for several years can compensate for this. But under any circumstances, all discussion of Indian health statistics must carry a warning of the dangers involved in interpretation from such a small number of cases.

Accuracy of Reporting

Another point to be kept constantly in mind is the matter of accuracy of data. The tabulation given above was prepared originally to show the degree of under-registration of Indian births in 1940. It is to be noted that for the United States, approximately one-third of all Indian births were not registered within the proper reporting period in 1940. Figures are not yet available on the 1950 Birth Registration Test. It is believed that conditions have improved since 1940, but undoubtedly Indian birth registration is still the poorest in the United States. No measure of the adequacy of death registration is available. However, it can be readily established that the reported infant mortality rate is extremely high, and it is logical to assume that among the unreported births many die without registration of either birth or death.[28]

It is also probable that cause-of-death reporting is slipshod and inaccurate in many of the cases that are registered. Again, the situation is improving. Twenty years ago, it was a common practice to allow the reservation superintendent, who was not medically trained, to inscribe on the death certificate his surmise as to the cause of death of an individual of whom we knew only the fact that the person was dead. Under such a system, all young adults died of tuberculosis; children under two of gastro-intestinal troubles, and so on. At present, the agency physician is required to certify as to cause of death, and is not normally so uninhibited about ascribing cause. Nevertheless, the doctor is frequently requested to assign a cause for a case that occurred 200 miles away and for which he has only hearsay evidence, sometimes supplemented by a previous hospital record. In many instances, he will indicate "cause unknown" but in others will hazard a "probably" such and such; and who can determine whether such a guess is or is not correct? The most that can be said is that cause of death reporting for unhospitalized Indian deaths represents the best available information of the person best-trained to make the determination, but is subject to an unknown percentage of error higher than for other groups in the United States.

Effect of Age-Sex Composition of Population

Another point to be kept in mind in analysis of Indian rates is the differences in the age-sex composition of the Indian population and the general United States population. A higher proportion of the total Indian population is in the younger age groups than any other racial group in the United States. Although the high infant mortality rate partly compensates for this, the larger number of younger persons in age groups with low death rates has a depressing effect on the Indian crude death rate.[29]

28. For a fuller discussion of Indian registration, see "Registration of Vital Events Among Indians," *op. cit. supra.*

29. For fuller discussion, see "Births and Deaths by Specified Race: U.S., Each Division and State, 1944," *Vital Statistics—Special Reports*, Vol. 25, No. 11, NOVS, Public Health Service, FSA.

Population Base for Indian Statistics

A detailed discussion of the problems of selecting a population base for Indian statistics has been given in "Registration of Vital Events Among Indians"[30] but should be summarized here. In 1940, the Indian population, as reported by the Bureau of the Census and the BIA, had a net difference of about 10 percent and a gross difference of about 20 percent. The reasons for these differences are not all determinable but apparently the major one is the inclusion by the BIA of persons of mixed Indian and white blood not living on Indian reservations and not tallied as Indians by the Bureau of the Census. Because the probabilities are that such individuals are also not reported as Indians on birth and death certificates, and because of the advantage of direct comparability with published NOVS statistics where Census population bases are used, the authors have preferred to use the Bureau Census population base in all calculation in this paper.

Where geographical subdivisions are to be used, no population estimate for Indians is readly available from the Bureau of the Census. Previous investigation indicates[31] that in most reservation areas the 1940 data from the Bureau of the Census agrees surprisingly closely with the Bureau of Indian Affairs' report of Indians "residing at jurisdiction where enrolled." Major exceptions are the states of Oklahoma and California. In other areas, use of current agency statistics on number of persons "residing at jurisdiction where enrolled" should result in rates fairly comparable to national rates based on Census data, except for the war years when migration factors not properly accounted for under the BIA procedures will have an effect. For pre-war years and to a somewhat lesser extent at present, migration is a negligible factor in the Indian population of most areas.

Analysis of Major Indian Reservations

To the student of public health one advantage of working with Indian data that has as yet been only slightly investigated is the opportunity to study groups with a wide variety of combinations of social, economic and racial patterns, with a greater than average assurance of further progress because of the record control exerted by the existence of tribal rolls. It seems advisable then to list principal Indian groups with a brief indication from available data as to the ethnological background, economic status, linguistic relations, degree of racial mixture, and percentage of the group residing at the reservation where enrolled.

In summation, it is suggested that the Indian population, past and in transition, offers an unexcelled opportunity to the student to note and evaluate the effect of race, variations in cultural patterns, diet, conditions of high prevalence of specific diseases, heredity, admixture of diverse racial stocks, group and racial inter-relationship, and prejudice and discrimination on the health of specific segments of the population of these United States. Studies involving these factors should give due weight to the difficulties in terms of variation of definition and smallness of sample if the Indian health problem is to be properly recognized.

30. *Op. cit. supra.*

31. *Ibid.*

Field Methods and Techniques:

Reciprocity as a Field Technique

Rosalie Hankey Wax*

In the past, young anthropologists often embarked on a first field trip in a spirit not unlike that of adolescent primitives facing initiation into the tribe. In solitary agony, supported only by the wise sayings of their anthropological ancestors, they met their crucial and mysterious ordeal. This old practice of sink-or-swim field experience was not in all respects unwise. A great deal of good field work and interviewing technique is analogous to the developmental experiences of life—phenomena which all social scientists must experience personally rather than vicariously.

Indeed, much of the advice given today is confusing and, if followed too religiously, may hinder rather than aid the neophyte. Some authorities, Margaret Mead, for example, insist that valuable data may be obtained on short, "hit-and-run" field trips. Others hold that lengthy sojourns, in which the investigator is saturated with data, are necessary. Obviously, the salient point in this debate is not the relative worth of short or long periods in the field, but the type of data desired. If the field worker wants information on matters about which most informants will speak freely, he need not stay long. If, on the other hand, he wants to observe a religious ceremony forbidden by the authorities, or to find out who committed some act regarded as criminal by the authorities, he may have to remain in the field a long time. In any case, the length of time required to obtain data that informants are reluctant to give depends on many different factors, one of the most important being sheer good luck.

Another moot question concerns the efficacy of rapport. Some anthropologists spend much time and energy developing a friendly relationship with informants; others hold that such effort can be a waste of time.[1]

I do not believe that this question can be answered categorically. While it is true that some information will be given freely only to inquirers who are liked and trusted, a great deal of communication between human beings, whether in field situations or in ordinary life, takes place on a neutral or even hostile level. Inexperienced field workers sometimes err in regarding the statements of friendly informants whom they like as more truthful or more valuable than those of offensive or less engaging individuals. In point of fact, the latter may give more significant information, since informants, like other humans, tend to conceal unpleasantness from those they like and, conversely, delight in telling the bitter truth to those they dislike.[2] On this question of rapport one can therefore offer the not particularly helpful suggestion that a person with sufficient insight may in a few hours learn more from one informant, be he friendly or hostile, than a person lacking insight will learn in months, even though the truth be presented to him daily written in letters of fire.

Many readers will differ with this somewhat exaggerated contention and point to the magnificent ethnological contributions of men who lived on amicable if not intimate terms with their subjects for many years. Here, however, it should be emphasized that the information gained by Hearn, Codrington, Malinowski, and others was not primarily a result of long residence among a foreign people or of amicable relations with them. Numerous colonial administrators, missionaries, traders, and less respectable expatriates have lived for long periods and on excellent terms with foreign peoples without learning much about them. The difference between the great professional and non-professional ethnologists and the ethnological ignoramuses is chiefly one of interest, understanding, and insight. While it cannot be denied that time and rapport contribute to the development of these valuable qualities, they do not inevitably create them.

The questions briefly discussed above resemble much of the current advice given inexperienced field workers, in that they are attempts to answer two simple but important questions: The first: "How does one get an informant to talk?" The second: "If one gets an informant to talk, how does one tell truth from misinformation or falsehood?" The main object of this paper is to suggest that the field worker may get what he wants more efficiently by stating these questions differently, namely, by asking himself (and subsequently answering) the questions: "Why should anybody in this group bother to talk to me? Why should this man take time out from his work, gambling, or pleasant loafing to answer my questions?" I suggest that as the field worker discovers the correct answers he will improve not only his technique in obtaining information but also his ability to evaluate it. I suggest, moreover, that the correct answers to these questions will tend to show that whether an informant likes, hates, or just doesn't give a hoot about the field worker, he will talk because he and the field

* Mrs. Wax is Assistant Professor of Anthropology in the College at the University of Chicago.

1. Margaret Mead, "Native Languages as Field-Work Tools," *American Anthropologist*, Vol. 41, No. 2, p. 198.

2. For insight into the "evils" of a society certain types of psychotic individuals would make excellent informants, since they are sometimes well aware and will speak of what ordinary informants repress or hide. For example, a field worker transported to the scene of Dostoevsky's *Brothers Karamazov* with the intention of finding out whether Ivan wanted to kill his father, would not be able to get a reliable answer from Ivan. He could, however, get a correct answer from the repulsive Smerdyakov, who took his own wish to kill his father for granted and clearly perceived the same wish in Ivan.

worker are making an exchange, are consciously or unconsciously giving each other something they both desire or need.

The gifts with which a field worker repays the efforts of his informants will, of course, vary with each investigational situation. Some will be simple gifts like relieving boredom or loneliness. Others will be on a more complicated psychological level, like giving an informant who thinks himself wronged an opportunity to express his grievances. And, not infrequently, the field worker who comes to understand why an informant talks to him will not be particularly flattered by this knowledge.

The fact that many informants talk freely because they are lonely or bored is perhaps not sufficiently appreciated by young field workers. Notebooks full of data may be acquired from an elderly person or from an individual who does not get along well in his community. The skill of the interviewer often plays a minor part in the accumulation of these data. The lonely informant has simply found someone who will listen to him.

Occasionally field situations occur in which informants are what might be termed "ideally bored." It is probably no accident that certain authors favor a tedious journey as background for their delineations of character, for they gain the needed information on trips when their fellow passengers have little to do but talk. The Japanese Relocations Centers set up to house the Japanese Americans forced to leave the Pacific Coast were, for their unfortunate inhabitants, about as boring as communities could be. While I would like to think that the data I obtained there bear some relationship to my personal skill, it would be gross self-deception not to admit that many informants talked to me week after week partly because there was nothing more interesting to do: Besides being an outsider with a somewhat different point of view, I spent my days snooping about the center and could therefore be used as an animated gossip column.

While the interviewer need not be aware of what he is giving in exchange, his evaluation of data will be improved by such awareness. In a community where most individuals are too busy to talk, the elderly or unoccupied informant is atypical and his statements and opinions must be considered in this light. The garrulous informant who takes to the field worker because he has few friends in his own community is even more atypical, and while his views are often valuable, they may be misleading if his motivations for expressing them are not appreciated. For example, a foreign student studying the faculty of an American university will probably find his most fluent informants among teachers who are either disgruntled or not accomplishing much. He may obtain an accurate analysis of what is wrong with a particular university, but if he wants a balanced view, he will err if he does not take into account the motivations of those who appear to talk freely and those who are more reserved.

Although most ethnologists and interviewers are aware of the fact that some informants talk to them out of curiosity, they probably do not always use this knowledge to greatest advantage. I am reminded of the striking success of a canny anthropologist who embarked on a field investigation among an extremely suspicious and uncordial group of American Indians.[3] This anthropologist and his wife (I am told) made no attempt to meet informants. They quietly set up their tent at some distance from the Indian encampment and proceeded to lie low. Within a short time they were deluged with visits from their aboriginal neighbors and were able to complete a satisfactory investigation. Their self-effacing and secretive behavior had aroused the keenest curiosity among the Indians. Lurid hypotheses had been conceived to explain the strange behavior of these two white persons. One Indian school of thought held that the man was a criminal hiding from the law, another that he had stolen another man's wife and that both were hiding from the vengeance of a jealous husband. Naturally, the Indians could not long refrain from making the acquaintance of such colorful characters.

I encountered a somewhat similar situation while interviewing residents of a New England town. For several months my predecessors had avoided interviewing some rather difficult characters. In a spirit of bravado, I volunteered to undertake this task and found it remarkably easy, partly because these recluses were figuratively dying to find out at first hand what the mysterious interviewers were doing to people.

Scientists sometimes forget that the more reputable aims of their profession, such as the search for truth, are nourished by an insatiable curiosity. If I invade another human's privacy with long lists of questions I will learn little unless I am genuinely curious; it is no more than common courtesy to reciprocate by satisfying the curiosity of my informant. If, like some misguided field workers, I play a false role or deliberately mislead the informant about my activities and intentions, I can expect to be repaid in kind. One particularly discourteous field worker of my acquaintance, who makes a practice of trying to deceive informants, has some very inaccurate data in his possession. Determined to get information on the sexual behavior of one informant, he falsely promised that he would keep the information to himself. The informant saw through this attempt at deception and repaid falsehood with falsehood, giving the interviewer an ingenious but quite fictitious account of her erotic activity. So far as I know, the interviewer still thinks he has accurate factual data.

Another very common reason why informants will spend time answering questions is that this gives them an opportunity to release aggression. This phenomenon is especially noticeable when studying a non-privileged or oppressed group. Aggression is probably one of the chief motivating forces behind the volumes of material collected by industrial counsellors.

Serving as recipient of gripes and grievances was one of my major functions when collecting data among the harshly treated Japanese Americans. Even when I called on old friends who had other reasons for conversing with me, we frequently cleared the air of accumulated tensions by making a few cracks at some new alleged administrative stupidity or, failing this, by making malevolent remarks about some unfortunate individual who was a current target of abuse.

3. I have heard this adventure attributed to several anthropologists. Though it is now a part of anthropologists' folklore, it probably is based on fact.

Students who have not as yet had experience in this type of field situation may appreciate the feeling of such informants by observing their own behavior when they, as a group, are out of hearing of some particularly unpopular and oppressive instructor.

Sometimes the informant may identify the field worker too strongly with the object of his aggression, a situation which may become dangerous for both of them. If the informant is not too neurotic and the field worker not too full of guilt (so that he unconsciously welcomes abuse from an oppressed informant) such situations can usually be smoothed over. Only a very few Japanese American informants occasionally, and usually unconsciously, tried to hurt me by making some particularly derogatory remark about America or Western culture in general. Sometimes these remarks were true; if they were not true I ignored them or said that I doubted them. In any case, my imperturbability in these matters convinced many informants that my German descent gave me a point of view very like their own. This was not strictly true. I let it pass, for in the confusing and emotionally disturbing environment of the Centers I was often not sure what my point of view was. On one occasion, however, a rather psychotic young man opened an interview by telling me that he would split my head open with a hatchet if I betrayed him to the authorities. When this did not appear to frighten me he proceeded to make statements which, if I had wished to report them, might well have resulted in his being punished. Then, because I listened calmly to his praise of the Nazis and the Japanese generals he decided that I myself was a German spy or at least a fifth columnist. At this point I lost my temper and avenged myself in oblique Oriental fashion by reciting in German some very anti-Nazi verses. My informant was enthralled and commented in an awed voice, "German is a wonderful warlike language." Needless to say, I did not pursue the acquaintance of this young man, since I did not feel capable of coping with him if he saw through me, nor did I wish to develop a reputation as a fifth columnist.

One of the most advantageous situations for a field worker, especially for one who is beginning a long and complex study of a relatively strange group, is to meet informants to whom he can give the opportunity to play the ego-enhancing role of an authority or teacher. The too eager field worker will find it advantageous to temper the aggressive behavior characteristic of our culture and to adopt instead the very reasonable view that he is ignorant but well meaning and needs someone to show him the ropes. It is not, of course, necessary to assume a false and exaggerated helplessness or stupidity, since non-professional tutors, like those paid by institutions of learning, enjoy instructing a bright student.

Almost every human being enjoys giving advice and being treated like an expert, and a field worker, particularly if he is studying a delicate situation, will be given hints and suggestions when he least expects them. Not all of this advice will be wise or correct, but the relationship between informant and field worker will be significantly improved if the latter is conscious of what is going on and receives the informant's instructions with attention and respect.

Employing this procedure superficially, I have been able to get on very good terms with working class women, simply by listening carefully to advice on how to deal with predatory men. In the tense, suspicious, and intrigue-permeated atmosphere of the Relocation Centers, I would have been quite lost, had it not been for the pointers given by sympathetic and kindly Japanese Americans.

A less subtle type of reciprocity is favored by those informants who wish to exploit the field worker in order to obtain gifts or favors. In the Relocation Centers the most demanding of all informants were the leaders of a small clique of pro-Japanese fanatics who were attempting to dominate the population of the Center. These would-be big shots tried to use me as a spy on administrative activities and sometimes requested truly dangerous favors, such as throwing messages to imprisoned agitators at the risk of being shot by the guards.

I am inclined to dislike informants of this type. This antipathy is probably personal rather than professional, since a manipulative inclination does not necessarily make a person a poor informant. I did not, of course, object to giving the informant some return for his time and trouble. Nor did I become provoked when some clever Japanese American tried to obtain a personal favor if, while being as subtle as possible, he implied that I understood the game he was playing. But I did not relish being taken for a naive fool, whose ignorance could be used to advantage.

I have elaborated this point not because my sentiments are important but in order to give weight to the suggestion that most informants, being human, will similarly resent a manipulative and patronizing attitude on the part of a social scientist. An interviewer who takes pride in getting something for nothing and thinks he is tricking his informants is not only making his task unnecessarily difficult, but, in most situations, is usually deceiving nobody but himself.

Leaders or would-be leaders, be they politicians, preachers, agitators, or gangsters, are generally most cooperative sources of information. Like other informants they talk because they get something out of it. They are often vain, they need converts or sympathizers, and, most important of all, they are seldom able to resist the opportunity to have their public spirited activities recorded by a sympathetic observer. That these activities, from another point of view, may seem dastardly or criminal is of no importance. I have heard men who subscribed to painfully noble ends relate in detail how they planned to terrorize a community and beat up anyone who opposed them, expecting all the while that these acts, when published, would redound to their credit.

One of the most challenging and intriguing field situations is the investigation of conflict between factions. The two major factions of the Tule Lake Segregation Center were a group of pro-Japanese fanatics who employed Fascist techniques, and a group of liberals, some of whom, interestingly enough, were gamblers and *sake* bootleggers. I am genuinely proud of having remained on excellent terms with the leaders of both of these factions, some of whom even told me their plans "so that I could watch and write down what happened."

These leaders so greatly needed an admiring and respectful audience that they were willing to hold long conversations with me, sometime before they trusted me to keep information from the administration or from their Japanese American

rivals for power. However, in order to get certain information, it was necessary that I obtain their trust. Although this took time, it was not particularly difficult. I told them that I would not repeat what they told me. If, like the Center's vice king, the informant was extremely cautious, I told him to watch me and see whether I kept my word. After six months of checking up on me, even the vice king became a fluent informant, plying me with distilled *sake* which loosened his tongue but did not make my note-taking particularly accurate. The leaders of both factions knew I was consulting their rivals and, as the conflict grew more intense, they denounced each other to me at length and in detail. They never, however, asked me for information about their rivals, nor did I volunteer any, preferring to maintain the attitude of one who was willing to be convinced that the person with whom I was talking was on the side of right and justice. In short, I assumed that both sides had some justification for what they were doing and always remained open to conviction.

Recently, I heard a field worker studying a political pressure group complain of difficulties with leaders. He reported that when they questioned him about his sentiments he replied that he was neutral. I think he was making an error. Leaders of a social movement gain nothing by expressing their views before a neutral or ostentatiously fair-minded audience, determined at the outset not to take sides. If there is no chance whatever that the listener may change his mind, the leader is wasting his time.

I do not advise an interviewer to pretend to adopt views of which he does not approve. He will, however, do well to remember that a coquette is in a much better situation to learn about men than a nun.

Occasionally a field worker may find himself in a situation in which he greatly needs information that an informant can reveal only at great peril to himself. Many experienced field workers have probably received such information, and their analysis of such situations would be most helpful. In my own experience, the few informants who appeared to take great risks in giving me information were astute individuals who knew what they were doing. I already respected and trusted them to the degree where I would not have hesitated to place my life in their hands. Moreover, I knew the value of the data I wanted and understood what would happen to the informant if I became careless. I suggest, therefore, that these courageous informants trusted me because they understood me, and because they knew that I understood them and the situation in which we were operating.

I have, so far, said nothing about those informants who refuse to talk. Disappointing as this experience is for the field worker, it is by no means valueless if he can explain it. During my work at the Relocation Centers, a Japanese American who had opposed the fanatic pro-Japanese clique had been branded a stool-pigeon and murdered. A few of my informants thereupon asked me never to call on them again. While this was regrettable, it was not uninstructive. It revealed the extreme fear of these people that they too might be considered stool-pigeons. This attitude also contrasted revealingly with that of informants who belonged to the pro-Japanese clique. These conspirators were delighted to see me and expressed joy over the terror the murder had inspired in many of the residents.

Equally instructive are those occasions when an informant will evade or refuse to discuss some question. Field workers need not be experienced psycho-therapists to use this phenomenon intelligently. Although the informant may suffer from a mental block on the topic introduced by the field worker, his silence or evasion may have other significant causes. Discussion of the topic may be bad form in his culture—indeed, it may be taboo. It may be discussable but delicate, in which case it can be re-introduced when the field worker and informant are better acquainted. Sometimes the informant simply has not understood the question and, like an ill-prepared student, is reluctant to reveal his ignorance. In any event, the correct analysis of why some question is not answered can yield more information than a fluent and lengthy reply.

The suggestions made in this paper are little more than an unpretentious application of certain theories of George Herbert Mead and Sigmund Freud to field techniques. These two psychologists share a basic assumption, namely: that human beings are capable of understanding what goes on in the minds of other human beings. Mead, indeed, holds that we are human only insofar as we possess this understanding. This paper is not an attempt to test this hypothesis. I have assumed that it is correct and have tried to show how it may usefully be applied to the task of obtaining data.

I make the simple contention that if a social scientist wishes to understand data about human beings, he will do well to begin by understanding the human beings from whom he obtains the data. This task, of course, is not always so easy as sections of this paper imply. "Taking the role of the other" is not merely evaluating a human who is unaware of one's existence. It entails the more complex task of identifying with an individual who is simultaneously trying to identify himself with you. As a simple example I cite the experience of two anthropologists who were a bit flabbergasted when their first Indian informant opened the interview by inquiring, "Well, how's your rapport getting along?" For a sensitive and stimulating attempt to delineate a primitive informant's endeavor to identify with an interviewer, I strongly recommend a study of Aubrey Menan's fictional account of an East Indian aboriginal trying to explain to a British administrator why his people killed a witch.[4]

In conclusion I would like to suggest that the attitude toward informants preferred by this paper gives a moral advantage lacking in at least some kinds of social science research. It is difficult for me to see how an interviewer who is not a sadist or a misanthrope can keep a good conscience when, armed with a long list of dull questions, he proceeds to bore an informant for hours on end. An interviewer who knows that he is giving something in return is much more likely to maintain his respect for himself and for his scientific endeavors.

4. *The Prevalence of Witches*, New York: Charles Scribner's Sons, 1949, pp. 51-67.

Minutes of the 1952 Annual Business Meeting of the Society for Applied Anthropology

The Annual Business Meeting was held on Saturday, September 6, 1952 at 5:38 p.m. in Roberts Hall, Haverford College, Haverford, Pennsylvania. Dr. F. L. W. Richardson, Jr., presided. Thirty-two Active Members were present.

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1. Dr. Richardson announced that the minutes of the 1951 Annual Business Meeting had been circulated among the membership and asked for any objections to them. Since there were no objections, the minutes were declared accepted as circulated.

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2. **Report of the Treasurer.** Dr. Froelich Rainey read the Treasurer's Report which consisted of three separate financial statements: (a) A statement of receipts and expenditures of the Society during the period June 1, 1951 to May 31, 1952 (See Appendix A). (b) A statement of receipts and expenditures of the Clearinghouse for Research in Human Organization during the same period (See Appendix B). (c) A statement of receipts and expenditures connected with the holding of preliminary meetings prior to the Annual Meeting (See Appendix C). Dr. Rainey also reported that four contracts are handled through the Society and that these would be discussed in the Secretary's Report since they are accounted for and administered separately. The Society usually receives a fee for the administering of these contracts.

It was moved by Dr. Charles Harding and seconded by Dr. Edward Hall that the Report of the Treasurer be accepted as prepared. The motion was carried unanimously.

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3. **Report of the Secretary.** Due to the recent death of Robert K. Lamb, Secretary of the Society, the Report was read by Dr. Margaret Mead.

Continued Support of the Society. Since it was clear that the Society would not be self-supporting by the time the Grant Foundation's three-year grant expired in January, 1952, in November, 1951 the Society again applied to the Foundation for a further two-year diminishing grant, to cover the period from February 1, 1952 to January 31, 1954, by which time it is estimated that no further support will be needed.

At the same time, the Society applied to the Foundation for a grant to subsidize the holding of preliminary conferences prior to the present 1952 Annual Meeting.

We are very pleased to report that the Foundation granted the Society a sum of $3,500 to cover the year February, 1952 to January, 1953, at which time it will consider making another grant on the basis of the Society's income. The Foundation also granted the Society $4,800 with which to hold preliminary conferences.

In February, the Grant Foundation remitted a check for $17,350 to cover the annual expenses of the Clearinghouse and publication of its *Bulletin*.

Membership. The total number of members as of May 31, 1952, was 1,620. Membership classifications (compared with May 31, 1951) are as follows:

	May 31, 1951	*May 31, 1952*
Active Members	228	274
Subscribing Members		
Individuals	849	628
Institutions		368
Student Members	254	308
Honorary Members	8	8
Exchange Members	31	34
	1370	1620

During the year, the Society received 157 resignations as compared with 407 new memberships. This means that from June, 1951 to May, 1952 there was a net increase in membership of 250 or almost 5½ percent.

A direct mail promotion campaign was conducted in December to approximately 6,000 anthropologists, sociologists, psychologists and orthopsychiatrists, with a resulting gain of 92 new members. The balance of 315 new members were unsolicited and, although it is not possible to state so definitely, it is presumed that the establishment of the Clearinghouse and its *Bulletin* has been largely responsible for this interest in the Society.

There seem to be two main reasons for the resignations: the most often given is a shortage of funds, and the other that the Society's field of interest does not coincide with the members' sufficiently to make it worthwhile continuing membership. Due to the fact that the costs of materials (especially printing) are rising, the Society still needs about 400 to 500 new members in order to become self-suporting.

Joint Meetings of the Society. Two joint meetings were held during the year:

American Anthropological Association—(1) November 15. Chairman: Cora Dubois. Report on the interdisciplinary work conference of the National Training Laboratory in Group Development. (2) November 16. Chairman: Sol Tax. Speakers: Edward A. Kennard; John Adair, Jean Comhaire and Robert Merrill.

Ohio Valley Sociological Society—April 26. Chairman: Horace Miner; Speakers: Floyd Mann, Jeanne Watson, Sidney Rosen, Eugene Jacobson.

Contracts. During the year, the Society has held contracts for the following projects.

(1) With the International Motion Picture Division of the United States Department of State. When this contract expired on January 31, 1952 it was renewed until July 31 and, later, an extension was granted until August 31, due to the fact that the 40 reports contracted for during the six-month period were not completed. It is expected that this contract will be renewed.

(2) With the U.S. Public Health Service, which granted a sum of $15,000 for the organization of materials for an international and interdisciplinary training program at the Annual Meeting of the World Federation of Mental Health.

(3) With the International Information Administration of the United States Department of State, for anthropological investigation of the organizational structure of three countries.

(4) With the Mutual Security Agency of the Department

of State to supply reports on the cultural background, etc., of six countries in the Far East.

It was moved by Dr. Edward Kennard and seconded by Dr. Rhoda Metraux that the Report of the Secretary be accepted as prepared. The motion was carried unanimously.

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4. **Report of the Editor.** Dr. Eliot Chapple, Editor of *Human Organization,* said that the editors were disappointed with the response to the Bronislaw Malinowski Awards which offer prizes for the best papers submitted in the field of applied anthropology. The first prize is $100.00 and the second prize is $50.00, with an additional Special Student prize of $50.00. He urged members to consider whether they have material which might fit into the editorial policy of the journal and the Malinowski Awards and, if so, to enter them for the Awards. He also asked members to encourage their students who are doing research or have written papers to do likewise, especially in view of the financial incentive.

Dr. Chapple emphasized in his report that articles in the journal deal generally with concrete case material and not with the analysis of cases in a more abstract form. This is simply because most articles received for publication deal with specific cases from which it is true there is the possibility of drawing generalizations. He assured those who are in the position to analyze a variety of cases bearing upon a general problem that such articles are very welcome provided they are grounded in case material and the relationship between generalization and cases is clearly defined.

The editors are interested in publishing articles from all the major fields with which the Society is concerned in each issue, but he commented that articles seem to come in cycles. For instance, several articles from the industrial or administrative field will arrive at one time, while none arrive in the psychiatric field. In conclusion, he stated that the editors edit the articles published so that professional jargon is simplified as much as possible in order for the contributions to be communicable to a larger audience and that potential contributors should keep this in mind when writing their papers.

It was moved by Dr. Vincent Bladen and seconded by Dr. Kennard that the Report of the Editor be accepted as prepared. The motion was carried unanimously.

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5. **Report of the Director of the Clearinghouse for Research in Human Organization.** Dr. Charles Harding reported that for the first year of the existence of the Clearinghouse he had attempted to ascertain what his expenses would be and to operate within the budget prescribed. It is now possible to expand the operation of the Clearinghouse in order to make it of greater service to those who use it and read the *Bulletin.* Several people have written to him explaining in what way the Clearinghouse has been of use to them. Aside from the benefit of the *Bulletin* itself, Dr. Harding has heard from several large corporations who wished to find out more about certain projects they believe would assist them in aspects of their work. Foundations have written for information and suggestions as to projects they might sponsor. Workers in the field from many parts of the world have written in to find out about others working in their areas in order that they might get in touch with them about mutual problems. Graduate students who are writing their theses have applied to the Clearinghouse for information about others working on similar projects to their own.

Three issues of the *Clearinghouse Bulletin* have been published and the material for the next two issues has been assembled. Copy for the sixth issue is in the process of being collected.

One real test of people's reaction to the Clearinghouse is that spontaneous, unsolicited reports are coming in. One institution prepares its own mimeographed forms and sends them in as its projects develop. Several government agencies are cooperating with the Clearinghouse and exchange information with it. Other governments, for example, the Danish government, spontaneously send in material on projects with which they are concerned.

Since becoming Director, Dr. Harding said he has visited the Universities of Wisconsin and Chicago, as well as Northwestern, Harvard, Columbia and New York Universities, the Massachusetts Institute of Technology and Michigan State College, in attempts to establish contacts and find out about research going on.

During the past year, Dr. Harding has been actively concerned with the arranging of the preliminary meetings. He has also prepared an index of the first 10 volumes of the journal. Finally, Dr. Harding reported that his files are maintained along the same lines as the *Bulletin* and that, in addition, there is a membership file and a geographical area file.

It was moved by Dr. William Whyte and seconded by Dr. Kennard that the Report of the Director of the Clearinghouse be accepted as prepared. The motion was carried unanimously.

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6. **Election of Officers.** Dr. Richardson read the report of the Nominating Committee. In addition to the usual offices to become vacant, unfortunately the office of Secretary also became vacant due to the death of Robert K. Lamb. The slate of officers and members nominated to these offices was then read.

President (1-year term): Solon T. Kimball, University of Alabama.

Secretary (remaining 2 years and 8 months term): Margaret Mead, American Museum of Natural History.

Vice President (1-year term): Gordon Macgregor, Technical Cooperation Administration, U.S. Department of State.

Regional Vice Presidents (1-year terms):

West: Edward T. Spicer, University of Arizona.
Midwest: Horace M. Miner, University of Michigan.
South: John Gillen, University of North Carolina.

Member, Executive Committee (3-year term): Everett C. Hughes, University of Chicago.

Member, Executive Committee (8-month term: the remaining term of Margaret Mead): David B. Hertz, Columbia University.

Since there were no nominations from the floor, Dr. Loomis moved and Dr. Chapple seconded a motion that the nominations of the Committee be accepted. The motion was carried unanimously.

At this point, Dr. Richardson introduced the incoming President of the Society, Dr. Kimball, and relinquished the chair to him. Dr. Kimball thanked Dr. Richardson for the

fine work he had done for the Society during his term. The members present responded with applause.

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7. **Local Chapters of the Society.** Dr. Kimball stated that one of the objectives of the Society is to work in the broad area of human relations and to bring together those people who are on the frontiers of knowledge of the science of man or society, so that through the journal and through meetings they may exchange information on the kinds of things they are doing. Out of this exchange of knowledge there is an opportunity to develop further advances in the field. In an Executive Committee meeting (held on September 5) there was a discussion on how the growth and development of the Society has reached the point where local organizations could be developed in those areas where persons in a variety of fields may come together profitably in order to exchange ideas and carry out the general objectives of the Society. Because of the increasing interest in the Society in a variety of places in this country, it is hoped that this coming year there may be developed a number of strong local organizations which will further strengthen the Society.

Dr. Richardson proposed a resolution to formalize the desire of the Society to promote local organizations. The resolution read as follows:

> "Be it resolved that the Executive Committee shall encourage the establishment of local organizations of the Society for the purpose of extending and further developing interest in applied anthropology. Each such local organization may select such officers as are necessary for arranging programs and conducting necessary business."

Dr. Richardson also pointed out that the convenors of these meetings could be either appointed by the Executive Committee or be self-appointed and that these people could call meetings at which those assembled could elect officers. The purpose is to give as much local autonomy as possible to such groups. Dr. Chapple asked to clarify one point about the term "local organization" which could mean city, metropolitan area, tri-city, in fact any area which happened to fit the particular local needs of the interested individuals. Therefore "local" has a relatively wide range of geographical possibilities.

Dr. Kennard said that as far as the Washington area was concerned, a year ago he had attempted to find out what could be done about arranging a local group of interested members. It is planned that beginning in October, the group will meet on the first Monday in each month. It is hoped to have a joint meeting with the Washington Anthropological Society every third or fourth month. Dr. Kennard extended a cordial invitation to members of the Society who happen to be in Washington at the time of the meetings to attend.

Dr. Hughes pointed out that this resolution does not involve any change in the By-Laws of the Society at the present time. Participants in these local meetings need not necessarily be members of the Society although it is hoped that as many of them as possible will be encouraged to join. Furthermore, the opportunity to meet with other local groups, such as the Washington Anthropological Society, or, in Chicago, the Society for Social Research, leaves the utmost flexibility in mobilizing people to anyone who wishes to do so.

Dr. Loomis said that he approved of the local unit idea, but that at East Lansing, for instance, of the 60 social scientists only about five were anthropologists. Consequently, if the group were to have a "social science" meeting more people would probably attend than if it were called an "applied anthropology" meeting.

It was moved by Dr. Richardson and seconded by Dr. Harding that the resolution be adopted. The motion was carried unanimously.

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8. **1952 Annual Meeting of the Society.** In previous years the Society has held its Annual Meeting in late May or early June. This year the Society had to depart from this custom for very special reasons, but in 1953 it is intended to revert to the Spring Meeting once more. It has been suggested that the next Meeting should most appropriately be held in the Midwest in view of the Society's membership there and the need to move from one area to another each year.

Dr. Fligelman suggested that we coordinate our Annual Meeting with the national meetings of other Societies. Dr. Kimball replied that it is not always possible but that our alternative is to hold joint sessions with these other organizations instead.

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9. **Grant Foundation.** Dr. Isabel Carter moved that a vote of thanks be sent to the Grant Foundation for making possible the preliminary meetings to the present Annual Meeting. Dr. Loomis seconded the motion which was carried unanimously.

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10. **Robert K. Lamb.** Dr. Harding said that Dr. Lamb's family had requested that people who would like to send flowers instead make a contribution to the Cancer Research Fund. Dr. Harding said that this seemed like a most appropriate way in which to remember Robert Lamb and wished to bring the suggestion to the attention of members. Dr. Harding moved that the President of the Society write to Mrs. Lamb and express in behalf of the Society our very deep and special feeling of loss. Dr. Mead seconded the motion which was carried unanimously.

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11. **Haverford College.** Dr. Mead moved that a letter be written to Haverford College authorities and to members of the local Arrangements Committee thanking them for their hospitality and cooperation. The motion was seconded by Dr. Kimball and was carried unanimously.

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12. **Program Committee.** Dr. Kimball proposed a motion thanking the Program Committee of the Meeting (Drs. Mead, Hughes, Chapple and Harding) for their work in arranging the meeting, with a special word of appreciation to the man who was responsible for the conceptualization of this program, Robert Lamb. Dr. Hughes asked that an amendment be made to the resolution thanking Tom O'Dea of the staff of MIT for his enthusiastic cooperation in acting as a liaison between members of the Society's Program Committee and Robert Lamb. The motion was seconded by Dr. Kennard and passed unanimously.

No new business was introduced and the meeting adjourned at 6:35 p.m.

THE SOCIETY FOR APPLIED ANTHROPOLOGY

Financial Statements

From June 1, 1951 to May 31, 1952

Society and *Human Organization* — Appendix A

Income	
Balance as of May 31, 1951	$ 9,603.70
Membership dues, single copies, etc.	7,973.63
Advertisements	29.15
U.S. Public Health Service (Overhead fee)	750.00
Miscellaneous (Including refunds for reprints)	391.56
Grant Foundation	3,500.00
Total	$22,248.04
Expenditures	
Salaries (Executive and clerical)	$ 4,642.67
Printing and mailing four issues of *Human Organization*	4,381.83
Direct mail promotion	1,840.11
Office equipment	92.25
1951 Meeting expenses	303.54
Travel	297.08
Newsletter (Photo-offset and mailing)	293.49
Stationery, stencils, etc.	566.21
Postage meter rental and postage (Office)	261.04
Telephone (Service and toll)	139.31
Miscellaneous expenses	609.15
Total	$13,426.68
Excess of income over expenditures	$ 8,821.36
Total balances as of May 31, 1952	$ 8,821.36

Clearinghouse for Research in Human Organization — Appendix B

Income	
Balance as of May 31, 1951	$13,862.34
Grant Foundation	17,350.00
Total	$31,212.34
Expenditures	
Salaries (Executive and secretarial)	$ 9,678.68
Printing and mailing two issues of *Clearinghouse Bulletin*	1,338.22
Rent	1,110.00
Travel	641.79
Stationery, stencils, mimeo., etc.	267.44
Telephone (Service and toll)	323.47
Utilities	102.23
Miscellaneous expenses	216.33
Total	$13,678.16
Excess of income over expenditures	$17,534.18
Total balances as of May 31, 1952	$17,534.18

Preliminary Conferences for 1952 Annual Meeting — Appendix C

Income	
Grant Foundation	$ 4,800.00
Expenditures	
First Preliminary Conference and Program Committee Meeting:	
Travel	$ 989.04
Living and housing expenses	731.06
Program coordinator's travel	120.75
Transcription of first conference	76.50
Stationery and mimeograph supplies	127.86
Telephone and telegrams	89.69
Audograph rental fee	60.00
Miscellaneous	30.00
Total	$ 2,224.90
Excess of income over expenditures	$ 2,575.10
Total balances as of May 31, 1952	$ 2,575.10

Reviews of the Literature

Physiology, Psychology and Social Behavior

Charles F. Harding, III

Over the last two decades ethnologists have been placing an increasing emphasis on social behavior rather than on artifacts and technologies. They have become increasingly interested in individuals and their interrelationships, in personality, and the ways in which it is developed and channeled. Sociologists, while not abandoning the study of population phenomena and general social trends, have become increasingly interested in small groups and the structural dynamics of specific institutions. Accordingly, there has been a tendency to take over methods and techniques for the study of individuals from others of the social sciences, especially psychology. This willingness to seek assistance from and make use of methods developed in other social sciences is a major strength of anthropology and sociology, as sciences devoted to the general study of man. Frequently, however, it seems that the particular methods and techniques selected have had very little real validation in their own area and often only a limited acceptance at best among those working in the disciplines in which they have been developed. Such methods and techniques have been taken over and enthusiastically used by anthropologists and sociologists in areas and on problems where there can be little or no hope of validation. Often this is because they are attempting to study the most complex aspects of a variety of human phenomena.

Much of the progress of the most successful sciences has occurred because investigators sought to obtain a comprehensive and general account of the phenomena in which they were interested, making use of the fewest possible concepts and assumptions. This is especially true of the most successful sciences—physics and chemistry—which, in spite of tremendous specialization apparent in each of them, have been placed upon a common and general basis.

The tremendous development of biochemistry over the last half century, and the success of such physiologists as Loeb, Hecht, Crozier and others in demonstrating physio-chemical basis for the behavior of organisms, clearly indicates that general theories of behavior can be developed which will rest eventually on the broad foundations underlying the physical sciences. By any reasonable rules of evidence there is every presumption that this must include social as well as other behavior. Hypotheses about and formulations of human social behavior and techniques for its study should at the very least not be inconsistent with established basic physiological descriptions of behavior and at best should rest upon them. It is unfortunate that anthropologists, sociologists, and social psychologists most commonly use psychological devices having no such basis. We have, of course, enough difficulty becoming expert in our own fields without also having to become expert physiologists, or physiological psychologists, and much of the foregoing and what is to follow will be distasteful to social scientists whose fields have evolved from philosophy and the humanities. There is no reason to suppose, however, that the steady progress in demonstrating physio-chemical bases for physiological events and physiological bases for overt behaviors will not continue. We must therefore be aware of what has been accomplished in these fields.

The purpose of this paper is to provide a guide to some recent literature conveniently summarizing current knowledge of basic behavior processes and the physiological processes related to them. A list of the references considered here appears in the bibliography at the end of the article.

Physiological Psychology by Clifford T. Morgan and Eliot Stellar is a revised edition of the 1943 text of the same name by Morgan. It is probably the best comprehensive introduction to what is known of the physiological processes underlying overt behaviors. It deals with the organization and operation of the nervous system, the internal homeostatic systems of the body, the various perceptive processes, the motor system, learning, conditioning, mating behavior, behavior disorders, and so on. Its presentation is simple without sacrificing accuracy.

The Handbook of Experimental Psychology, edited by S. S. Stevens, is meant to provide a systematic digest of the several areas of experimental psychology. In it 34 contributors have covered in detail the areas of their interests. An introductory paper by Stevens on "Mathematics, Measurement and Psychophysics" discusses the relationships between mathematics and measurement, and the implications of these relationships for quantitative psychology and for the use of statistics in the analysis of psychological data. Stevens faces with considerable honesty the failures of psychologists to achieve satisfactory methods of measurement in many areas. This paper should be compulsory reading for all social scientists attempting to use quantitative methods and statistical techniques. After this introductory and basic paper, the book is divided into six sections of several papers each. These six sections are: (1) "Physiological Mechanisms," containing articles on neural excitation and conduction, synaptic mech-

anisms, sensory mechanisms, motor mechanisms and homeostasis; (2) "Growth and Development," containing articles on the mechanisms of neural development, the genetics of behavior, phylogenetic comparisons, etc.; (3) "Motivation," including papers on instinctive behaviors, learnable drives and rewards, and emotion; (4) "Learning and Adjustment," including animal studies on learning, the psycho-physiology of learning, and speech and language; (5) "The Sensory Processes"; and (6) "Human Performance," including papers on selection, training, and work and motor performance.

Almost all of these topics are of importance to students of human social behavior. The importance of knowledge about perceptive and integrative functions and motivational factors in "field" approaches to social behavior is coming to be recognized. But those dealing in "sentiments" and elaborate classifications of behavior involving emotion continue to do so without reference to the large amount of literature on the physiology of emotion.

In general, the book covers much the same ground as Morgan and Stellar but in more detail. The section on "Human Performance" is the least adequate, much pertinent work in the fields covered in that section being ignored. The book is supposed to cover much the same ground and indeed to supersede *A Handbook of General Experimental Psychology* edited by Carl Murchison and published by the Clark University Press, Worcester, Massachusetts, in 1934. To a considerable degree it does so, but it lacks any material comparable to "The Study of Living Organisms" by W. J. Crozier and Hudson Hoagland, and "Mechanisms and Laws of Heredity" by T. H. Morgan, which appear in the earlier work.

Theoretical Foundations of Psychology edited by H. Helson, like the *Handbook* edited by Stevens, is made up of a number of papers by recognized authorities in particular fields of psychology. It attempts, however, to summarize and examine the various theoretical bases underlying work in these fields rather than to present a digest of existing knowledge. In addition to papers on measurement, nervous function, neurological correlates of behavior, development and maturation, motivation, feeling and emotion, learning and perception, and fatigue and efficiency—topics also covered in the *Handbook*—it contains papers on intelligence, personality, abnormal psychology, and social psychology. In general, *Theoretical Foundations,* because it does emphasize theoretical considerations at the expense of factual data, is not as valuable to the non-psychologist as the *Handbook* or Morgan and Stellar, as it does not provide him with the information on and understanding of psycho-physical processes. The chapter on "Measurement in Psychology" by J. P. Guilford and Andrew L. Comrey in *Theoretical Foundations* contrasts most unfavorably with the article in the *Handbook* on the same subject. The relationships of mathematics and measurement are similarly stated, but the following struggles of Guilford and Comrey to justify psychometric methods are too much for them, as for example when they describe how interval scaling has been achieved, only to reveal that this achievement was accomplished by assuming the achievement. And this is not the only assumption involved in the process, though it is quite enough. The paper on work and fatigue, like that on work and motor performance in the *Handbook,* omits much pertinent and important material, including the physiological work of Hoagland and his associates and the many important studies made by the Medical Research Council of the British Industrial Health Research Board (formerly the Industrial Fatigue Research Board).

Comparative Psychology edited by Calvin P. Stone is also a collection of papers by several authorities. It was first issued in 1934, revised in 1942, and a third edition with considerable revision was issued in 1951. As the title indicates, emphasis is placed on the extent to which behavioral uniformities can be developed through comparative studies of different organisms. The papers are somewhat uneven, some being rather elementary and oversimple in their approach, others assuming considerable background. For our purposes the most valuable papers are: "Motivation of Animal Behavior" by P. T. Young, "Internal Secretions and Behavior" by W. C. Young, four papers on various aspects of learning by W. T. Heron, H. F. Harlow, K. W. Spense, and D. C. Marquis, "Discriminative Behavior in Animals" by K. U. Smith, and "Individual Differences" by C. S. Hall, all of which deal with overt responses of individual organisms and their underlying structural and physiological bases. The three final chapters—"Problems and Principles of Animal Sociology" by N. E. Collias, "Social Behavior in Primates" by H. W. Nissen, and "Abnormal Behavior in Animals" by R. A. Patton—deal with the behavior of individual organisms as related to others and are therefore of especial interest to us. Collias in his paper summarizes the literature on dominance hierarchies, territoriality, sexual selection, the ecological role of aggregates, the general mechanisms of group integration, social behavior as affected by population density, physiological aspects of social adjustment, including the roles of hormones and the nervous system, and the relationships of social life to the evolution of various life forms. Nissen's paper summarizes the literature on social behavior among the primates. Nissen's own work and the studies of Carpenter, Crawford, Maslow, Nowlis, and Zuckerman stand out as being particularly important. Patton's paper deals with experimental neurosis in different species of animals and the various physiological, structural and biochemical factors affecting such neurosis.

Comparative Psychology should be valuable as a corrective for those who are convinced that man is a being apart. It is quite true that one cannot with any certainty make statements about human behavior from an experiment or series of experiments with a particular animal where the results may depend upon structures peculiar to that animal. It is perilous, however, to refuse to consider the possibility that phenomena observed to occur over a wide phylogenic range of animal subjects have no importance in the study of human behavior.

Tinbergen in his *The Study of Instinct* summarizes a wide range of European and much American literature on innate behavior. He demonstrates through numerous examples how many apparently complex behaviors and sequences of behaviors can be understood objectively in terms of the organization of the organisms, its particular internal state at the time in question and releasing external conditions. He demonstrates that many complex behaviors often described as being indicative of "free-will," "intelligence," etc., can be shown to be determined by physiological mechanisms brought into play

by changing internal or external conditions. His dismissal of Loeb's work on tropisms, however, seems to be unnecessarily abrupt, a circumstance made more apparent by his failure to mention any of the work of Crozier, Hoagland, Stier, et al. The careful experimental procedures and quantitative descriptions and analysis of various behaviors by these successors of Loeb might well be applied to the material presented by Tinbergen. There seems to me to be no very great difference in subject matter or point of view, except a lack of rigid control and a failure to make quantitative studies.

Allee's *Cooperation Among Animals* is a revised and amplified edition of his earlier book, *The Social Life of Animals* (W. W. Norton, N.Y., 1938). The earlier chapters of the book are concerned with the effects of various degrees of crowding upon the members of the crowd. Up to a certain degree of crowding the effects are beneficial, as shown, for example, by a lower death rate or quicker recovery rate after being submitted to toxic conditions. Beyond an optimum point greater crowding has adverse effects. Reproduction rates, mutation rates, growth rates, and other criteria are similarly used to demonstrate the effects of crowding. The physiological and biochemical processes underlying these phenomena are described. Allee's use of the words "cooperation" and "competition" in connection with these phenomena does not serve to make them any more understandable and seems to me to give them an unnecessarily subjective slant.

The facilitation or impedance of certain activities—feeding, learning, reproducing, and so on—through the presence of more than one animal are described, and the literature on the structure of social groups among animals is briefly surveyed. The final chapters on "human implications" are disappointing, as they are devoted to philosophizing in the general area of ethics rather than to the significance of studies of the behavior of many kinds of animals as a basis for the study of the behavior of a particular animal, *homo sapiens*.

Methodology and Techniques for the Study of Animal Societies, edited by J. P. Scott, is composed of a series of papers presented at a meeting sponsored by the New York Academy of Sciences and the New York Zoological Society in 1950. "General Plans and Methodology for Field Studies of the Naturalistic Behavior of Animals" by C. R. Carpenter, and "Techniques for Observing Bird Behavior Under Natural Conditions" by John T. Emlen, are both concerned with certain general and specific problems in field methods and techniques, which may be of some interest to those of us studying human groups in the field. "The Relationships Between Observation and Experimentation in the Field Study of Behavior" by T. C. Schneirla, is of much more importance. Schneirla points out that no clear-cut distinction can be made between the laboratory and the field, that the laboratory is simply "a limited and controllable field." Many controls utilized by careful and systematic workers can and should be used in either case, as, for example, repeated observations. A careful study of this paper and the adoption of many suggestions made in it would produce much more reliable material on human social behavior. "The Study of Wild Animals Under Controlled Conditions" by John B. Calhoun, demonstrates how "laboratory" and "field" can be profitably combined, as does "The Isolation of Factors of Learning and Native Behavior in Field and Laboratory Studies" by Bernard F. Riess. "The Social Behavior of Dogs and Wolves: an Illustration of Sociobiological Systematics" by J. P. Scott, and "A Study of the Phylogenetic or Comparative Behavior of Three Species of Groups" by J. W. Scott, show what can be done through comparative studies of animal social behavior. Anthropologists who have been concerned with what can be developed from the comparative study of human groups might find them of interest. "The Measurement of Some Physiological Reactions to Arctic Conditions" by L. Irving, and "Effects of Nutrition and Diseases on Experimental Animals" by L. J. Goss, are concerned with the effects of certain external and internal conditions upon animal behavior.

"Social Life and Individual Among Vertebrate Animals" by N. Collias, is, however, undoubtedly the most important paper in this collection for students of human society. In it he summarizes the literature on dominance hierarchies, territorialism, leadership, and, in so far as there is any information, on the processes underlying them. Their importance in structuring and maintaining groups and in modifying or controlling individual behavior is discussed. After reviewing this field, Collias in his conclusions states very clearly a basic proposition with regard to animal societies often expressed in the editorials of this journal. He says: "In the opinion of the author, those methods which have furthest advanced our understanding of animal societies in the recent past have been the more precise, quantitative, and continued programs which have focused on the individual differences in behavior at critical times and paid little attention to traditional inter-disciplinary boundaries."

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